Railway Age

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FIRST HALF OF 1928—No. 3 NEW YORK—JANUARY 21, 1928—CHICAGO SEVENTY-SECOND YEAR

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N. Y., N. H. & H. Gilt Edge Express at Forest Hills, Mass.

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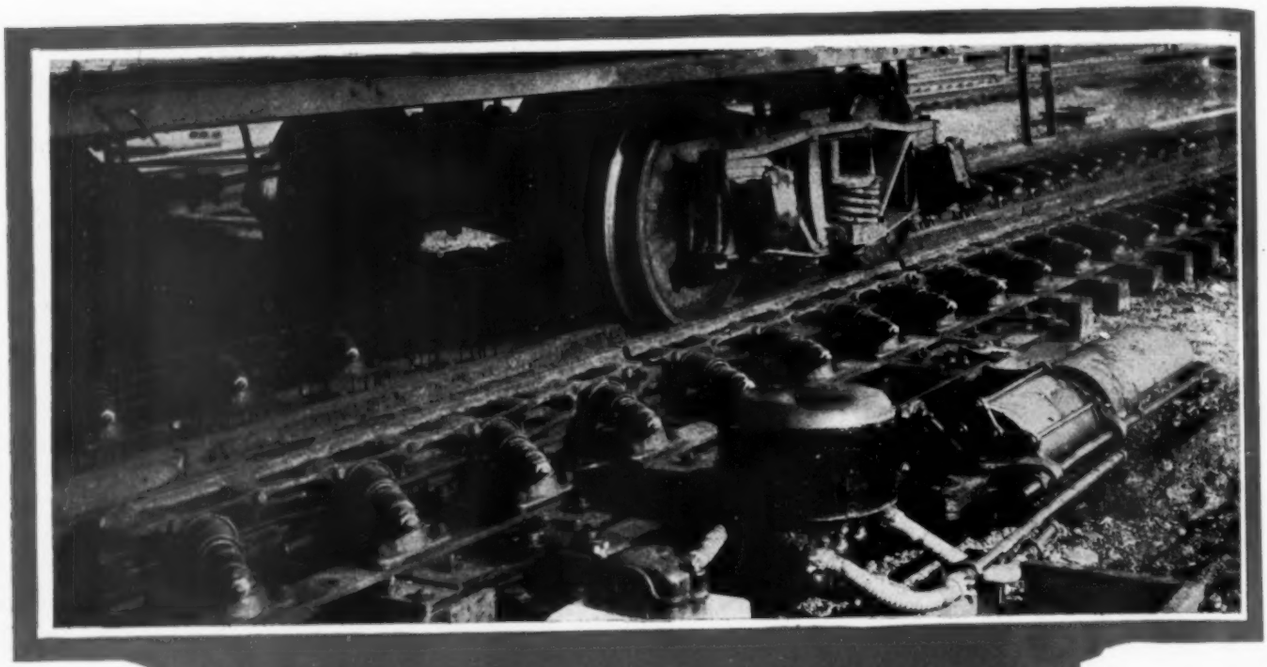

Railway Age

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The Active Car Market

BY this time readers of the *Railway Age* are familiar with the behavior of the suddenly active freight and passenger car market at the end of 1927. The placing of a large number of orders at the last minute was amply covered in the annual report of orders placed published in the Annual Statistical Number. What readers may not be quite so well aware of is that the increased activity in the car market has continued. So far in the month of January orders for freight cars have topped 2,000. Moreover, inquiries out that have not yet been contracted for promise the continuation of this activity for a number of weeks. There are inquiries outstanding at the present time for about 5,500 freight cars and for over 700 passenger cars.

Motor Transport Division Plans Immediate Activity

THE new Motor Transport Division of the American Railway Association will hold its organization meeting at the Palmer House, Chicago, on January 25 and 26, preceded on January 24 by a meeting of the executive committee, which will draw up plans for the organization. This will not be a perfunctory meeting, called merely for organization purposes. Maintaining the precedent for hard work established by the division's predecessor, the Railroad Motor Transport Conference, plans have been made to have at the Chicago meeting, immediately following the formalities of organization, serious and comprehensive discussions by each of the three sections—motor coach, motor truck and rail motor car. The activities of these three sections will impinge on almost every department of the railroad. The advisability of each railroad being represented by several delegates, therefore, seems apparent. It is gratifying to see the new division planning to commence active work so promptly, since motor transport problems are now assuming even greater importance by reason of the proposed Interstate Commerce Commission report on regulation, the announced hearings on the report and the likelihood of regulatory measures being passed by the present Congress.

Summer Instruction in Transportation

THE Harvard Graduate School of Business Administration, as part of the program of wider usefulness made possible by the recent gift of five million dollars by George F. Baker, has announced that it will conduct during the summer months of 1928 a special session for businesss executives. The curriculum for the summer session will include courses in business policy and business law, accounting, finance, marketing, etc., and, what is of most interest to *Railway Age* readers, a course in railway transportation. Harvard and Yale seem to be co-operating in the last mentioned, because the course is to be presented by W. J. Cunningham and W. M. Daniels, professors of transportation at the respective institutions. Both are well known to railway men; not only because of their university activities, but also because the former was head of the Operating Statistics Section of the United States Railroad Administration and the latter, at one time a member of the Interstate Commerce Commission. As outlined in more detail in the news announcement which appears on another page, the course will be intended for junior officers and various operating and departmental heads of the railroad companies. It will treat of economics, regulation, valuation, consolidation, rate-making principles, railroad organization, the functions and inter-relations of departments, accounting and statistical analysis, methods of yard and train operation, personnel, etc., or, in general, of the broader aspects of transportation outside of the details that come across the desk of the individual in the course of his ordinary work. One does not have to be unduly enthusiastic to agree that the establishment of a course such as this should prove to be one of the most important steps in transportation education that has been made in a long period of time.

South Jersey Roads Conduct a "Referendum"

THE railroads serving Southern New Jersey are facing a crisis by reason of highway competition. Philadelphians and others resident in centers of population not far from the Jersey coast have acquired the "seashore habit," which has been fostered for decades by as excellent railroad service as is to be had in America. Now, however, in the absence of regulation of interstate highway transportation, fleets of motor coaches have gone into service, undercutting railroad rates for the single-trip and round-trip passengers, leaving the railroads the non-remunerative commutation business. It is patent that the railroads cannot long continue to maintain their excellent service for commuters alone. They must have a good measure of the higher rate traffic to continue in business. How the present tendency works out to the detriment of the railroads is illustrated by the trend at one station. At this station in the course of a year full rate business declined almost 40 per cent, while commutation traffic rose 47 per cent, giving the railroads about 20 per cent more passengers to handle with a decrease of 15 per cent in gross receipts. Now, in the effort to win back the round-trip passesngers, the railroads—the Pennsylvania and the Reading—have placed in effect reductions in rates for this class of ticket amounting to about 45 per cent. It remains to be seen what success they will have. The reduction the Pennsylvania refers to as a "referendum" to determine the public's choice between motor coach and rail transportation. In view of the inability of the motor coach lines to handle com-

mutation traffic at anything like railroad rates or at railroad speed, it would appear that the "referendum" is of interest to others than the railroads. Indeed it might almost be said that the Jersey shore is asked to vote upon its continued prosperity—which is inseparably bound up with excellent commutation service at reasonable rates for its citizens.

The Railroad Power Plant

OPINIONS on the question of generated versus purchased power have swung back and forth with developments in the power producing industry. At one time engineers decided that power should be purchased for all operations located where exhaust steam was not needed for heating. Later developments in large central stations owned by power companies, coupled with improved distribution, made it appear that it would be best to purchase electric power even where exhaust steam could be used for heating. Then the coming of the mixed pressure turbine apparently put things back where they were originally. Each individual case, of course, presents a separate problem. The Chicago, Burlington & Quincy was recently able to show a net return of 15.8 per cent on the total expenditure involved by changing over to purchased power for the operation of air compressors, pumps and roundhouse and repair track facilities at Murray yard near North Kansas City, Mo. The old power plant is now used for heating purposes only (see *Railway Age*, December 24, 1927). In contrast to this, is the new Northern Pacific plant at Brainerd, Minn., described elsewhere in this issue, which has been able to show a saving in cost of operation of 47.4 per cent as compared with the old plant it displaced. This saving was effected principally by boilers designed to burn a cheaper grade of fuel and by the use of a mixed pressure turbine. The turbine serves to extract power from steam used for heating in the winter time with little loss to the heating value of the steam and in the summer time, the exhaust steam from non-condensing machinery is used by the turbine to generate electric power. The respective decisions to purchase and to generate power by the two railroads in question were evidently correct and suggest similar possibilities in other places. Developments in the power industry have moved rapidly during the past ten years and an investigation of any plant which has been operated over that period without change will probably prove profitable.

Only 5,400 Miles of Line Now in Receivership

THE Interstate Commerce Commission having given its approval to the reorganization plan, the receivership of the Chicago, Milwaukee & St. Paul has been terminated and the property turned over to the new Chicago, Milwaukee, St. Paul & Pacific. On another page of the present issue will be found an article briefly describing the new financial structure and discussing the major problems confronting the new company's new executives—Chairman Byram and President Scandrett. The article in question draws attention to the fact that the St. Paul was the largest road in receivership in the country's history. It was so large, indeed, that it included two-thirds of all of the mileage of the 37 carriers that were operated by the courts at the beginning of this year. This mileage, according to the compilations made by the *Railway Age* for its Annual Statistical Number, totaled 16,622. With the St. Paul eliminated, the total now becomes 5,400, which is the smallest railroad mileage to be operated by receivers since 1911. Important railroads in the list of 36 now in receivership include the Chicago & Alton, the Minneapolis & St. Louis, the Central Vermont and the Missouri & North Arkansas.

The withdrawal of the St. Paul from receivership may with propriety be said to mark the termination of a railroad receivership cycle—the second major cycle that has occurred in, say, the last forty years. The record for the poorest year from the standpoint of railroad corporation adversity in this period seems to be held by 1894, because on June 30 in that year, the railroad mileage in receivership totaled 40,819. This included a number of large and important railroads that have since taken their places among the most prosperous carriers of the country.

The 1894 receivership mileage was gradually reduced as the country recovered from the depression that signalized the early nineties and entered the succeeding period of industrial expansion that characterized the late nineties and the early years of the present century. By 1905 railroad receiverships had almost disappeared from the country's business picture, because on June 30 in that year the mileage of roads in receivership had been reduced to a mere 796. Receiverships seem to have come back into style the following year, because on June 30, 1906, the miles of roads operated by receivers had become 3,971. It increased to a total of 10,530 in 1909 but in 1911 had again fallen to 4,593. This phase might be designated a minor or subsidiary movement rather than a cycle.

The phase that better deserves the name of cycle, may be said to have begun in 1911. At any rate, following that year railway financial disasters occurred with disconcerting frequency until on June 30, 1916—although only five years had elapsed—the mileage of roads in receivership had risen to 37,535, due very largely to the insufficient earnings of the roads in the newly developing Southwest. However, whatever the reason, the roads involved were gradually restored to corporation, as distinguished from court, control until in 1924 the miles in the hands of the courts had been reduced to 8,105. Due notice was taken at the time of the improvement reflected in this figure, but the prognostications were entirely upset by the financial tragedy of the big St. Paul system in the following year and a resulting sudden upward jump of over ten thousand miles to a total of 18,687 miles in receivership at the end of 1924.

Inasmuch as the 11,000 miles of the St. Paul bulk so large in any consideration of the receivership figures, it is quite inadvisable to draw any moral from the comparatively small mileage of railroads in receivership at the present time—now that the St. Paul has been reorganized—outside of those that people wish to draw from the situation of the St. Paul itself. We can, however, trust that the railroads have sufficiently improved their financial structures in the last few years so that receiverships will prove in the future to have become a less important phase of the railroad problem. It may be remarked, in conclusion, that if receiverships have become less to be feared, the result is much more due to the manner in which the railroads have held down their fixed charges and built up their uncapitalized equities by making a larger share of their capital improvements out of earnings, rather than to any notable willingness on the part of the rate-making authorities to allow a satisfactory level of rates yielding a fair return on the carriers' property investment.

Wood Preservation on the Railways

THE fact that the American Wood Preservers' Association will hold its twenty-fourth annual convention at Montreal next week (January 24-26) calls attention to the close relationship that exists between the railways and the industries represented by that organization. While it is true that 82 of the 111 pressure treating plants are owned by other than railway corporations, the railways have always been the largest users of treated wood in this country, and the industry has been built up to its present importance through the treatment of wood for railway use. Even though the wood preserving industry is more than a half century old the railways are still practically the only large wood using industry to recognize the merits of timber treatment in a large way and more than 85 per cent of all of the timber treated today goes into railway service.

Cross ties have always constituted the largest single class of timber treated and now comprise approximately 65 per cent of the total output of the industry. In 1926, a total of 62,654,538 ties were so protected or somewhat more than 65 per cent of the total requirements of the roads.

Piling has also long been subjected to treatment primarily by the railways. The piling treated at the West Pascagoula, Miss., plant of the Louisville & Nashville for its bridges between Mobile and New Orleans and those still remaining in the Southern Railway's trestle across Lake Pontchartrain were forerunners of the creosoted ballasted deck pile structure that is standard on many roads today. Of late the appreciation of the fact that modern construction practices permit the framing of much of this timber before treatment, thereby avoiding the necessity of cutting into or through the protected surface during installation, is extending its use.

Another outstanding development in the utilization of treated timber by the railways in the last few years has come through the rapidly increasing use of treated poles. This has been particularly evident in the lines built for automatic signaling and train control power lines, many of which are now being erected of creosote materials throughout.

The objective underlying this attention to timber treatment is, of course, the reduction in expenses resulting from less frequent replacement. In the early days of timber preservation its advocates urged it primarily as a means of reducing the drain on our timber resources and pointed at great length to the approaching early extinction of our forests and the evils that would follow. This gave the promoters of substitute materials an opportunity that they were not slow to take advantage of with the result that drastic reductions occurred in the demands for timber. At the same time the effects of treatment have become evident through further reductions in requirements for cross ties, piling and construction timbers, with the result that the per capita consumption of timber has declined nearly one-half in the last 20 years. In an effort to overcome the effects of this conservation propaganda the lumber industry has recently inaugurated an advertising campaign to inform potential users of the fact that there is a sufficient supply of timber for all users if it is used intelligently.

This is the program which the railways have followed. While they have possibly been influenced to some extent by the argument for conservation their policies have been guided primarily by the recognition of the economy resulting from the treatment of timber. That this economy is being realized is shown in a striking manner by the statement made by George J. Ray, chief engineer of the Delaware, Lackawanna & Western, at the recent convention of the Roadmasters Association, to the effect that by reason of the careful selection of timber and its equally careful treatment the annual renewal of ties on that road has been reduced to less than 100 per mile and their average life increased to more than 20 years. Furthermore, of 175,000 treated ties removed from main tracks as unfit for further service there, 99,000 have been returned to service in side tracks. Mr. Ray stated further that he fully expected that it was going to be possible for him to meet all of his requirements for yard and side track ties from those released from the main tracks.

This is the record of timber preservation. It is the objective of the railways in adopting this practice so generally. It is also the reward of the railways for their long continued leadership in timber preservation.

Protecting Railroad Crossings

THE protection of outlying crossings of two or more railroads to permit the elimination of train stops is becoming more important as the length of trains increases and the schedules of important freight and passenger trains are shortened. The majority of these crossings on trunk lines are now protected by interlockings, but the traffic on secondary lines has increased in recent years so much that the advantages of eliminating train stops wherever possible here are also becoming apparent. A difficulty in providing regular interlocking protection at many outlying crossings arises where one of the carriers interested has such light traffic that it hesitates to assume its share of the cost of operating the interlocking, the principal item of which is the wages of the levermen. As a result the other road continues to suffer delays to its trains.

Recent developments in the signaling field are changing this condition. With the recommendation of the American Railway Association, Signal Section, to eliminate derails, the necessary protection has been simplified so as to eliminate the necessity for levermen for the operation of plants at comparatively simple crossings.

The use of so-called automatic signaling plants is becoming general practice and has already been applied to the crossings of busy double-track lines with single track secondary lines. Where a service of only one or two trains a day prevails on one road, the use of gates is being revived as a means of expediting traffic on the other line without involving an expenditure that will be objectionable to the road operating minimum service. Where gates are objectionable, one road is using derails on the light traffic line, set normally to derail and requiring the trainment of this line to operate them by levers at the crossing.

To illustrate the extent to which the roads are cooperating to reduce train stops, two large roads in the middle west have recently agreed to provide protection at a number of crossings at which the elimination of train stops is important to one road or the other, where the total expenditure is to be around $30,000 and about 75 train stops are to be eliminated every day on each of the roads. The elimination of train stops and delays on secondary lines will result in shortened schedules on the entire system and quicker delivery at the principal terminals. Especially when the result can now be accomplished economically, the action to be recommended is obvious.

Tendencies That Demand Attention

RECENT tendencies in the railroad field demand careful study and serious consideration by regulating authorities, business men, railway officers, labor leaders and railway employees.

It is no less true now than it was eight years ago, when the Transportation Act was passed, that over periods of years the railways must earn a reasonable average net return if they are to furnish good and adequate service. Although during these years they have not earned such a return, their financial results steadily improved until the end of 1926; but during the last year the tendencies that had prevailed since 1921 have ceased to prevail. Total earnings began to decline in June, and have been less in every month since than in the corresponding month of the preceding year. Total net operating income began to decline in May, and has shown a decline in every month since.

These tendencies were emphasized in November when, with a reduction of about 10 per cent in total earnings, there was a decline of $28,500,000, or 25 per cent, in net operating income. This made the net operating income earned in the first eleven months of last year $124,000,000 less than in 1926 and $16,000,000 less than in 1925; and as the results in December undoubtedly were of a similar character, the decline for the year probably will be found to have been larger than previously estimated, or from $130,000,000 to $135,000,000. As the investment in the railways has been increased, the percentage of return earned by them, whether computed on their property investment or the Interstate Commerce Commission's tentative valuation, was substantially smaller than in 1926 or 1925, and may have been no larger than in 1924.

There have been declines in gross and net earnings in other lines of business. These have been partly due to reductions of volume and partly to declines of prices. The agricultural industry has been an exception to the usual rule. Farm prices, and in consequence the purchasing power of the farmers, have increased. This calls attention to one outstanding difference between the railroad and most other industries. A decline in prices in any other industry, resulting in a decline of earnings, may soon be offset by an advance in prices, resulting in an increase in earnings. In the railroad industry, on the other hand, it can never be hoped, when rates are reduced, that they will soon be increased. It is comparatively easy for the Interstate Commerce Commission and railway officers to make downward readjustments. It is extremely difficult to get advances to compensate for them. Consequently, almost always the general tendency of railway rates is downward. Besides, it is as easy to get advances of wages in the railroad as in any other industry, and more difficult to get reductions than in almost any other industry.

What Is Causing the Decline?

With these facts in mind it is highly desirable to face squarely the influences that are causing a decline in the net operating income of the railroad industry. They can be better understood and measured if the results of 1927 are compared with those of 1925 than if they are compared with those of 1926. Both the total earnings and the freight business of 1927 were larger than those of 1925. There was a decline of passenger earnings, but this was more than offset by an increase of freight earnings. There were, however, increases over 1925 in operating expenses and taxes that consumed more than the increase in total earnings. Total earnings would have been larger than they were excepting for a decline in average revenue per ton per mile. Operating expenses would have been less than in 1925, owing to increased efficiency of operation, excepting for advance in wages.

The decline in net operating income as compared with 1925 in spite of an increase in freight business is an especially ominous indication for the railways at present because of their increasing dependence upon freight business for their earnings. If they cannot increase, or even maintain, their net operating income with an increased freight business they are heading for trouble. Serious trouble may be remote, but the time to guard against it is when it begins to loom up and not after it has been actually encountered.

The Duty of the Commission

Present tendencies plainly impose duties upon the Interstate Commerce Commission as well as upon railway managements. In view of the developments of recent years it seems futile to hope for a cessation of the decline of passenger earnings until the increase of travel in sleeping and parlor cars begins to offset the decline of travel in day coaches. With passenger business declining and freight business normally increasing the railways are becoming more and more dependent on freight business; but freight earnings depend on freight rates as well as on volume of freight business, and there is a constant tendency of railway traffic officers and of the commission to make downward "adjustments" of freight rates. Moreover, the Hoch-Smith resolution, as interpreted by the commission, hangs as a threat over the freight-rate structure, and especially that of the western roads. If the commission's decision in the California deciduous fruit case is an indication of the policy it intends to follow the threat is a serious one. But upon what ground can the Hoch-Smith resolution now be defended? Statistics of the Department of Agriculture afford what seems to be a convincing argument against reductions of freight rates on farm products under present conditions. These statistics show that the average wholesale price of farm products in November was 53 per cent higher and of all commodities 52 per cent higher than in the five year period that ended with 1914. The comparable increase in average revenue per ton per mile of the railways of the country was only 49 per cent, and of the railways in western territory only 32 per cent. Another equally pertinent question is as to whether the trend of railway wages should continue to be upward when there is no trend upward of the cost of living and a trend downward in the net return being earned by the railways.

Recent developments show that if the decline in net operating income is to be arrested, and if the effects upon railway development and service to which its continuance would inevitably lead are to be prevented, the managements of the railways must not only continue to make great efforts to increase the efficiency of operation, but that they must also present a more united front and make greater efforts to check the influences that are tending to reduce earnings and increase expenses and taxes. Unfortunately, there is always more likely to be competition than cooperation between the railways in the adjustment of rates and regarding many important features of service; there is often a notable lack of consistency and regard for the interests of each other in the policies followed by them in dealing with labor problems; and even as regards the state of public sentiment and questions raised by regulation they are prone to put undue emphasis upon supposed individual interests to the neglect of the welfare of the railways as a whole. The for-

tunes of each railway are so largely determined by influences affecting them all in the same way that, in the long run, each individual railway would be better off if the higher officers of all of them cooperated more in studying and seeking solutions of the problems that confront them all alike. Present tendencies in the industry are quite unsatisfactory enough to warrant more cooperative study and action. Excepting the decline in passenger business, these tendencies are the same as those which caused the steady decline in net return which began in 1911 and continued for some years; and there is no more important work that railway managers could do now that that of concertedly adopting definite policies for combatting these tendencies before they can put the railroad industry into serious trouble again.

Appointments to the Commission

COMMISSIONER ESCH of the Interstate Commerce Commission has been reappointed by President Coolidge, and confirmation of his reappointment is pending in the Senate. He is one of the majority members of the commission who, on the occasion of the last decision in the Lake Cargo coal rate case, voted for making the coal rates from union mines in Pennsylvania and Ohio lower as compared with those from non-union mines in West Virginia, Kentucky and Tennessee. Because of the way he voted in this instance the operators of mines in the southern fields are openly and vigorously opposing his confirmation. The same group of coal mine operators some months ago successfully opposed confirmation of the appointment of Mr. Wood of Pennsylvania for a similar reason. The Southern Appalachian Coal Operators' Association has adopted a resolution saying that Mr. Esch is "experienced and his character above reproach," but that its members are opposed to him because they do not like the principles he favors in the regulation of rates. Likewise, a group of radical senators opposed confirmation of the appointments of Commissioners Woodlock and Taylor, especially of the former, not because they were not men of ability and high character, but because it was feared that they would favor a liberal policy of regulation.

The course taken by the southern coal operators and the radical senators in these cases presents a striking contrast to that which always has been taken by the railways. Throughout the history of the commission presidents of the United States, with practically no railway opposition, have been appointing to it men whose previous careers and affiliations made it highly improbable that they would perform their duties as commissioners without prejudice against the railways. The commission contains several such men now. The *Railway Age* has repeatedly quoted the views regarding regulation and government ownership expressed by Commissioner Eastman both before and since his appointment to the commission to show the improbability of his being able to assume an attitude of strict impartiality toward the railways.

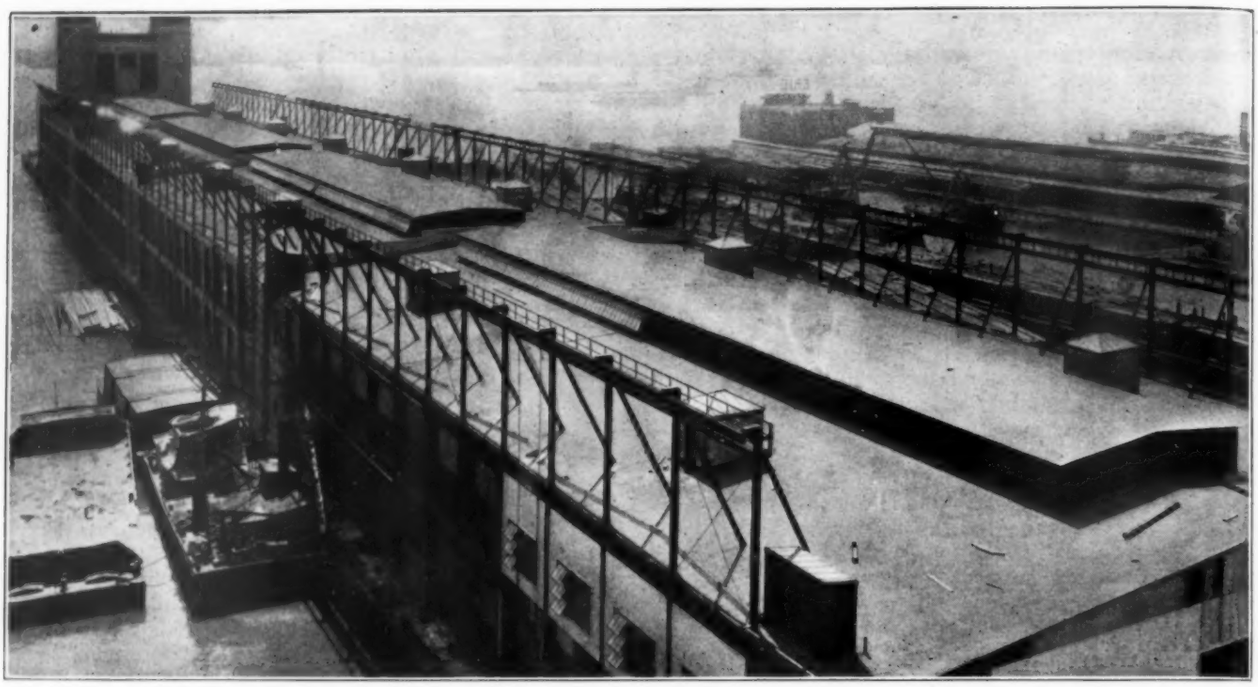
An almost equally good example is afforded by the case of Johnston B. Campbell, who was recently elected chairman of the commission. The bitterest and longest struggle ever carried on between the shippers and railways of any territory over rates was that over the adjustment of rates to the Pacific coast and western intermountain territory. In that struggle the shippers were led by the business interests of Spokane, Wash., and Mr. Campbell was secretary, manager and attorney of the organization that represented the Spokane interests. It would have been difficult to have found in all the territory from the Mississippi river to the Pacific coast a man less likely to assume an impartial attitude toward the claims of western railways. Nevertheless, his appointment and confirmation as a commissioner was not opposed by the railways, and he now sits as the chief judge over them.

The history of regulation raises a very serious question as to whether the practically unbroken course of the railways in offering no opposition to appointments to the commission has been sound. The policy of the commission before the war was so restrictive that it sharply reduced railway development, caused prolonged shortages of transportation and precipitated the adoption of government operation. The provisions of the Transportation Act were intended to, and it was assumed would, cause a less restrictive policy of regulation to be followed. They have not had that result. The commission has continued to be as restrictive in its policy as it was before the war, and in the decision in the O'Fallon case a majority of its members have favored a method of valuation plainly contrary to the heretofore recognized law of the land as a basis and warrant for continuing to carry out an extremely restrictive and unfair policy.

That the general policy the commission has followed and now favors is largely due to the appointment to it of so many men who had previously manifested anti-railway prejudices there can be no serious question. Would fewer such men have been appointed if the railways had made greater efforts to influence appointments? Perhaps not, because in the past the railways were so unpopular that their opposition to a man might have convinced presidents, senators, and public that he would make an ideal commissioner. But public sentiment toward the railways has changed, and it seems not improbable that at present railroad opposition to an appointee, if backed with evidence that he could not be expected to be an impartial and just judge, would not be without effect. At any rate, if appointments are to become the subject of struggles between groups of shippers seeking to further their own interests, and if appointees assumed to be friendly to fair and constructive regulation are to be assailed by radical statesmen, why should not the railways, which have the most at stake, also take a hand in trying to influence both the appointment and confirmation of commissioners?

An Unusual Case

The case of Commissioner Esch is an unusual one. It is reported that the southern coal mine operators will be supported by radical western senators in opposing his confirmation because he was one of the principal authors of the Transportation Act. Mr. Esch cannot be included in the bloc of commissioners who can be relied upon to vote against the railways in almost every important case. But, while he was one of the principal authors of the Transportation Act, it cannot be said that he has made any heroic efforts to secure regulation of rates in accordance with its rate-making provisions; and he is one of the majority of the commission who rendered the decision in the O'Fallon case. There seems to be no reason why the railways should be especially interested in the struggle over his confirmation, excepting the report that radical senators will oppose it because he was one of the principal authors of the Transportation Act. The defeat of his confirmation upon that ground would be a bad thing. The Interstate Commerce Commission has for eight years shown enough unwillingness to carry out the rate-making provisions of the Transportation Act without being encouraged to continue to do so by the retirement of one of its members largely because he was one of its authors.



Looking Toward Lower Manhattan, Over the New Double-Deck Pier

Erie Builds Large Modern Pier in New York Harbor

Location over vehicular tunnels of the Hudson river involves the use of 845,000 feet of piling in special substructure construction

ONE of the major improvements completed by the Erie during the last year is a modern steamship and lighterage pier on the Hudson river water front in Jersey City, N. J. This pier, which is known as pier No. 9, is worthy of special notice for a number of reasons, including its size and the effectiveness of its arrangement, its favorable location, the permanent type of construction employed and the special problems encountered in its construction.

The pier is a two-story steel structure, 1250 ft. long by 150 ft. wide, with berth space and cargo beams along the full lengths of both sides for the loading and unloading of steamships and lighters. The main deck of the pier, which is served throughout its length by two standard gage railroad tracks, is used primarily for the storage and transfer of rail-water shipments, while the loft is used for the storage and handling of import and export cargo which is brought to or taken from the pier by drays or trucks, and also, for the loading and unloading of steamship passengers. The new pier has been made readily accessible for automobiles, trucks and drays through the construction of a 20-ft. concrete driveway extending westward approximately 1100 ft. from its shore end to a connection with 12th street in one of the industrial sections of Jersey City. The loft of the pier is reached over an inclined concrete roadway which branches off from the main roadway and extends to the loft level on a grade of about 4 per cent. This roadway is approximately 625 ft. long, the first 180 ft. being on a fill maintained between concrete retaining walls, while the remainder is a concrete deck structure supported on structural steel framing.

Pier Has Unusually Favorable Location

From the standpoint of the Erie railroad and water shippers, the new pier has one of the most advantageous positions along the Jersey water front. Located almost directly opposite the center of Manhattan island, the pier lies within the passenger and freight terminal area of the Erie in Jersey City, approximately 400 ft. north of the Erie's passenger station. The most significant feature of the pier's location is the further fact that it lies directly over the new Holland vehicular tunnels which have recently been completed, connecting New York and Jersey City. So located, the entrance to the new pier is in close proximity to the New Jersey entrance of the tunnels, which gives the pier a most favorable position owing to the readily accessible traffic connection with the heart of the metropolitan district.

From the standpoint of construction, the location of the pier over the tunnels necessitated a radical departure from the common design of pier foundations, requiring the use of unusually long piles, spaced closely together in three tiers in order to clear the tunnels beneath, and at the same time provide adequate support for the superstructure. In the particular location chosen, the off-shore end of the pier protects one of the large blower towers of the ventilation system provided for the vehicular tubes.

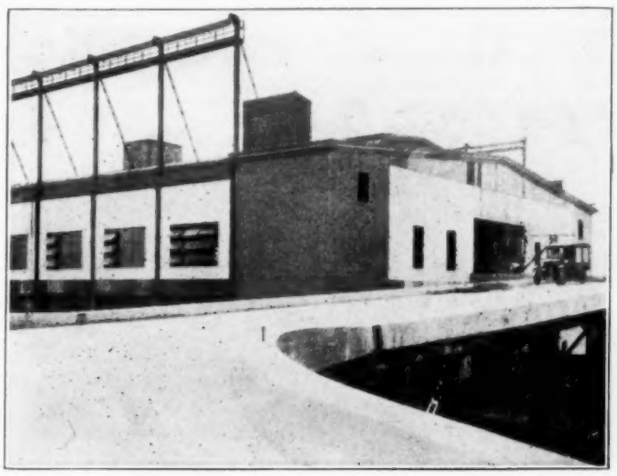
Pier Has 188 Full-opening Cargo Doors

As previously mentioned, the superstructure of the pier is two stories high, 1250 ft. long and 150 ft. wide, which provides a total floor space of approximately 375,000 sq. ft. Throughout, the superstructure is of structural steel construction, steel being used for all columns, roof trusses, floor beams, and for a considerable part of the siding. The roof of the pier is of the monitor type covered with 2-in. tongue and groove pine, which in turn is protected by Barrett built-up felt and slag roofing. Both sides of the roof monitor throughout the full length of the pier are fitted with manually-operated top-hung continuous steel sash glazed with wire glass, affording adequate ventilation and daylighting within the loft section. The flooring used in both the main level and in the loft consists of 6-in. by 6-in. Douglas fir timbers supported on heavy built-up I-beam girders.

In order to make possible the loading or unloading of lighters and ships at any point along the pier, both sides of the pier at both levels, are fitted with a special type of full-opening cargo doors, separated only by the roof-supporting side wall columns. These doors, of which there are a total of 188 in the pier, are a special type of double-leaf vertical-lift, horizontal-folding doors, designed by the Erie, constructed entirely of steel except for the large area of sectional wire glass provided in the upper leaf of each door to afford daylight for the interior of the pier. In operation, the lower leaf of the doors is raised vertically and then both leaves are swung into a horizontal position within the pier, providing the full opening of each doorway with little possibility of interference with stored cargo. Through this arrangement, both sides of the pier, at both levels can be completely opened if necessary, making it possible for ships or lighters to berth at any point along the pier, regardless of the location of their hatches.

In the general design and layout of the pier, every effort was made to provide a maximum of unobstructed floor space, the only obstruction permitted being the fire walls, columns and track pits on the main deck, all of which were essential to the construction of the pier. The fire walls are three in number, extending across the full width of the pier in both the main deck and the loft, and dividing the pier into four sections of approximately equal length. These walls are constructed entirely of concrete, 12 in. thick, and extend from the substructure well above the top of the roof. Each fire wall has two large openings on each floor to provide for the free passage of trucks throughout the entire length of the pier. These openings lie on either side of the center of the pier, about midway between the center and the side walls, and in each case are protected by a twin installation of sliding tin-clad, automatically-operated fire doors.

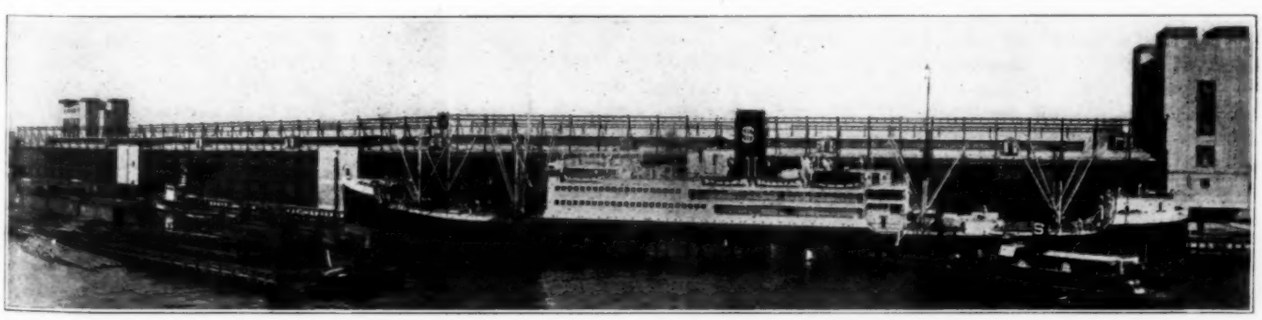
In addition to these fire doors to close off the truck passageways through the fire walls in case of fire, the track openings through the walls on the lower deck are also protected with fire doors which will lower automatically in case of fire, completely closing off the individual sections of the pier. These latter doors operate in a vertical plane and when opened extend up along the solid portion of the fire wall in the loft where they are entirely out of the way. All of the fire doors within the pier are of the tin-clad type.



The Rear of the Pier Showing the Steel and Concrete Approach Ramp to the Upper Deck Level

Other features about the pier which reduce the hazard of fire are the metal fire curtains provided over two of the roof trusses in each section of the pier, and the complete installation of a dry pipe automatic sprinkler system. This sprinkler system is connected to a 100,000-gal. fresh water supply tank and has auxiliary connection with a battery of electrically-driven fire pumps for use in emergency.

The only other obstructions within the pier on each deck other than the fire walls, are the stairways, elevators and columns, which have been so located as to minimize interference with trucking. For example, the stairways from the main deck to the loft and from the loft to the roof, of which there are two in each section of the pier, are located adjacent to the side walls and close to the fire walls. In the loft the only columns throughout the entire floor area lie in a single row longitudinally through the center of the pier, these being



The New Erie Pier, With One of the Holland Tunnel Ventilating Towers at the Off-Shore End

spaced 20 ft. center to center and supporting the roof trusses.

On the main deck three intermediate rows of columns extend longitudinally through the pier, each with a column spacing of 20 ft. The center row of columns however, does not interfere in any way with operations within the pier as it lies between the two railroad tracks in the track pit. The other rows of columns lie along both sides of the pier, 12 ft. 6 in. from the side wall columns which support the outer ends of the roof trusses. These columns support the floor structure of the loft, and were provided mainly for two reasons. One of these was to make possible a maximum height of side door openings, which could not have been secured if the deep girders of the loft deck had been extended to the side columns, and the other was to distribute the weight of the loft deck over different areas of the foundation piling than those supporting the side walls and the roof structure. As these columns are spaced 20 ft. apart and about 12½ ft. back of the doors, they do not afford obstruction to storage or trucking operations.

The Three Tiers of the Pier Sub-Structure at Various Stages of Construction. Note the Precast Concrete Blocks in Place Above the Piling

17 Freight Elevators Connect the Pier Decks

For handling cargo between decks of the pier, each of the four sections of the pier is equipped with four, two-ton, electrically-operated freight elevators. These elevators, which are enclosed within shafts constructed of hollow building tile, are located symmetrically within each section in such positions that they provide unrestricted storage and trucking space on all four sides. In each case the elevator shafts are protected against damage by vehicles or hand trucks, by heavy timber wheel guards.

In addition to these 16 general service elevators at the pier, the outshore end section of the pier is equipped with a 15-ton heavy duty elevator for the transferring of exceptionally heavy shipments, or entire truck loads, from one deck to the other. The principal advantage of this special unit is through the fact that drays or trucks with shipments to be handled out of each deck, can be transferred from one deck to the other without the necessity of making a long run through the pier to the loft level approach ramp. As with the smaller elevators, this larger unit is electrically operated and is so located at the extreme end of the pier, beyond the ends of the pier tracks, that it can be approached from either side of the pier on both levels.

Each Deck of the Pier is Used for Specific Purposes

In the utilization of the extensive area supplied in the new pier, the main floor, which is located at an elevation of approximately eight feet above high tide level, is used primarily in connection with the transferring of cargo from lighters to ships, and vice versa, and for the interchanging of shipments between ships and freight cars. For each of these classes of work, special provision has been made within the pier. For handling lighterage freight into and out of the main deck, most of which is done toward the shore end of the pier, five ramps have been provided along each side of the pier in the two sections near this end, these ramps leading down to openings at a suitable level for handling shipments to and from lighters. These ramps are approximately 25 ft. long and 15 ft. wide, and rise on an easy grade to the floor level of the pier. To facilitate the handling of rail-ship cargo or vice versa, the two standard gage railroad tracks extending through the center of the pier have been depressed within a pit so that car floors are at the same level as the deck of the pier.

The loft of the new pier affords space that is used almost exclusively for the storage of cargo and for the movement of trucks or drays in handling import or export shipments into or out of the pier. The exceptions to this are in the allotment of certain space on this deck for offices and for facilities for steamship passengers. In the layout of the floor area of the loft, which is obstructed only by the fire walls, columns and elevators as previously mentioned, the outer end of the rear section, or that furthest from the shore, is used for the storage of the gear used in working the ships. Here also is provided a segregated area for the storage of ship engine parts and an area for the storage of dunnage.

The passenger and office facilities at the new pier are located entirely in the loft, these being confined within two separate enclosures at the front of the pier, on either side of the loft level entrance and exit driveway. These enclosures, which are approximately 100 ft. long by 52 ft. wide, are built-in units, entirely enclosed with side walls and a roof, the latter lying immediately below the lower chords of the roof trusses of the pier

proper. So constructed, both of these units might be considered as separate buildings in themselves, placed in position on the loft floor and divided into suitable areas for passenger and office facilities.

The principal passenger facilities within these units are a well appointed waiting room, approximately 50 ft. long by 46 ft. wide, a small women's rest room, and wash and lavatory facilities. These are not intended to be spacious as they are used only upon the arrival of passenger-carrying ships and then primarily by friends or relatives of passengers who come to the pier to see them off or to welcome them home.

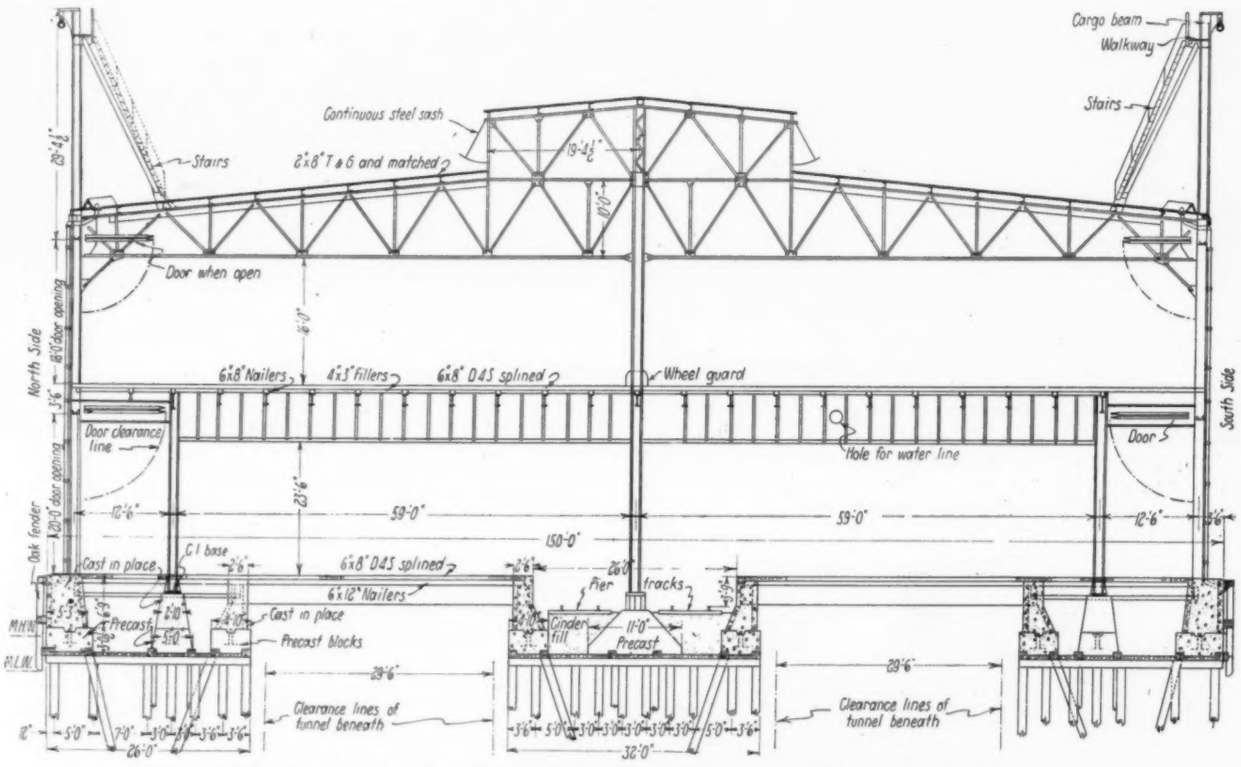
Substructure Presented Interesting Piling Problems

The most interesting work, from an engineering standpoint, in connection with the building of the new pier was involved in the construction of the foundation and the first deck. This was due to the location of the vehicular tunnels directly beneath the site of the pier, which would not permit a more or less regular spacing of the foundation piles throughout the area covered by the pier.

Reference to the accompanying cross sectional view of the pier and its foundation will make evident the unusual problem which was encountered. With the two circular tubes, 29 ft. 6 in. in diameter and spaced approximately 65 ft. center to center, directly under the pier site, it was necessary to group the foundation piles in three tiers, suitably spaced, and extending parallel with the tunnels and the length of the pier. In so doing, one of these tiers was placed along the north side of the north tunnel, one tier immediately south of the south tunnel, and the third tier between the two tunnels. Confined to such a layout, unusually long piles and close spacing were required in order to provide adequate supporting power for the superstructure. The pile spacing was increased or decreased, as was found necessary or advisable, the spacing in each direction varying from about 3 ft. to 8 ft.

The length of the piles as specified ranged from 85 ft. to 110 ft., although in some instances piles were driven as long as 128 feet. The distribution of the longer piles throughout the foundation varied somewhat with the location of the more concentrated loads, although in the main they were used throughout to form the two outside rows of piles in the outside tiers, to support the loads of the wall columns, and toward the rear end of the pier in deep water, where increased length was required to secure the proper penetration.

In driving the piling for the pier foundation, all of which was done with steam hammers, every precaution was taken to preclude distortion of, or damage to, the tunnels. This was necessary particularly when driving the rows of piles nearest to the tunnels, as these rows were placed as close as 1¾ ft. to 2 ft. from the tunnel casings. As a precaution in this work, men were stationed within the tunnels at all times during driving operations, and were equipped with telephone connections to the pile drivers so that they could warn the operators of any adverse effects the driving was having upon the tunnels. That this was advisable was evidenced by the fact that in spite of the tendency of the driving to distort the alinement of the tunnels, this distortion was kept to a negligible amount through the direct contact maintained between the pile driver operators and the men stationed within the tunnels.



Sectional View Across the Pier Showing Its Unusual Foundation Construction

All of the piling used in the pier substructure was untreated timber, but as it is all cut off and capped well below high tide level, no trouble is anticipated from decay. All of the 85-ft. piles and approximately 50 per cent of the 90-ft. piles used were long leaf yellow pine, while the remainder of the 90-ft. piles and all of those of greater length were Douglas fir. The

magnitude of the pile-driving operations in connection with the substructure of the pier is better appreciated when it is understood that in all, approximately 845,000 lin. ft., or about 160 miles of piling was put in place.

The Substructure

Above the piling and capping, the substructure of the pier consists of a six-inch timber deck over each of the three tiers of piling, and along the sides of each of these tiers is a row of massive, interlocked, precast concrete blocks which in turn supports a poured-in-place concrete foundation wall. These latter walls, which extend throughout the length of the pier support the side wall columns and the heavy structural steel beams of the main deck floor system. The columns in the center row, extending throughout the length of the pier between the

View Showing the Twin Concrete Pedestals for Supporting the Center Columns of the Pier, and the Heavy Structural Beams to Support the Floor System

two pit tracks, are each supported on twin concrete pedestals which rest directly on the decking over the pile capping. This same situation exists in the case of the columns supporting the outside edges of the loft deck structure, except that in these instances, single flared concrete footings were used to distribute the load. The tracks serving the pier lie directly over the center tier of foundation piles, and in this location are supported on about five feet of cinders which are retained between the concrete side walls along center tier of piling.

The new pier No. 9, which replaces the Erie's old piers No. 8 and 9 in practically the same location, is under lease by the Dollar Steamship Line.

In the operation of the pier, practically all cargo on the main deck level is trucked manually into and out of the holds of the ships, while at the loft level the freight is handled through the use of gear in connection with the cargo beams extending along both sides of the pier above the roof structure. Some of the cargo handled over the main deck of the pier is trucked direct from ships to cars or vice versa, although more frequently cargo is accumulated and stored according to destination, either along the pier tracks for subsequent loading into cars, or near a designated pier door for subsequent stowing in ships.

In the loft the same principle of operation is carried out except that truck cargo alone is handled on this level. If an interchange or cargo is necessary between the pier decks, the elevators at frequent intervals make this readily possible. Little mechanical hoisting or conveying equipment of any kind is used in the operations at the pier, the large area provided making it possible in almost every case for car or truck shipments to be placed in close proximity to the proper outbound doorway.

This is also the situation with respect to inbound cargo which usually arrives in large shipments, with specific destinations to be reached either by rail or truck. In such cases trucks or freight cars are spotted as near as possible to the point where the cargo is unloaded to preclude long haul rehandling operations. Rehandling of lighterage freight for export is in many instances avoided altogether, in that a considerable amount of this class of cargo is transferred directly from the lighters into the ships as they lay at the pier.

The construction of the Erie's new pier, which was completed only recently and put in operation, was carried out under the general supervision of R. C. Falconer, formerly assistant to the president and chief engineer, and now engineering assistant vice-president of the Erie, and R. S. Parsons, now chief engineer, while the plans and details of all construction were prepared in the office of F. A. Howard, engineer of structures. The actual construction work was carried out under the direct supervision of C. H. Splitstone, superintendent of construction, who was represented in the field by A. B. Fowler, resident engineer. The general contractors on the work were Foley Brothers, Inc., St. Paul, Minn., while all of the structural steel was furnished by the American Bridge Company.

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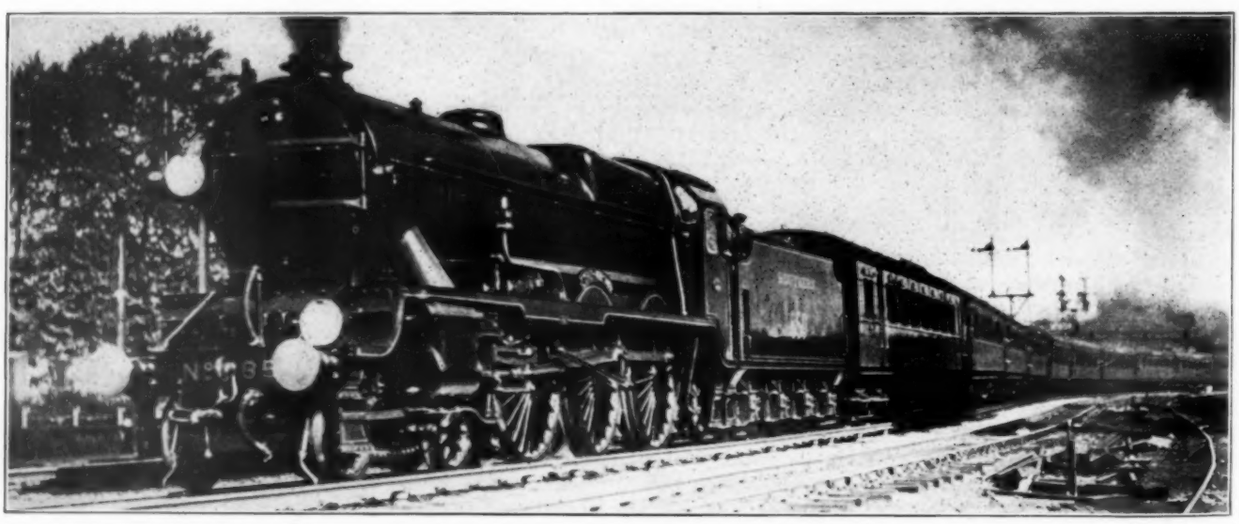


Continental Express, Southern Railway (England)—Drawn by the New "Lord Nelson"

Pennsylvania Experiments with Budget for Purchases

The Master Stock Books of the Pennsylvania Number over 300 Volumes

New plan of stock control follows in wake of $55,000,000 *cut in unapplied materials*

FOR the past two and one-half years, the Pennsylvania has been experimenting with a budget for purchases. Less money tied up in unapplied material and more stability in stores are the aims of the plan which is administered by the store department. Monthly requirements of materials are developed from the operating expense budgets of the company. All supplies, excepting fuel, ties and rail, and certain miscellaneous materials, are affected and there is a budget for each of 42 different classes of material. During the first 10 months of 1927, total purchases did not exceed the total budget allotments at any time and the average monthly variation from the allotment was only 7 per cent. The value of all materials and supplies on hand at present is within 8.5 per cent of annual operating expenses, and the stock of materials less fuel, ties and rail has an average turnover of 3.1 times a year.

Base Budget on Operating Expenses

The Pennsylvania's purchase budget is not widely understood. On or about the 25th day of each month, information of the expenses which the managements authorize for the operations of the railroad during the next month is obtained by the stores department. This operating budget separates the prescribed expenses for maintenance of equipment, maintenance of way and structures and transportation; but it does not distinguish between expenses for material and those for labor.

The supply department's only interest in this operating budget is for the information it will give as to the amount of materials which will be required under it. Since this information is not afforded directly, it must be developed indirectly. A formula is employed for this purpose in which the value of material is expressed as a certain fraction or percentage of operating expenses. This formula was developed from a study of the operating expenses and material consumption for more than three years. In such studies, the expenses have been limited to those for maintenance of equipment and maintenance of way, omitting transportation charges, while the value of materials consumed, which is represented by the issues to closed accounts, includes freight and inspection charges.

Find Monthly Operating Need

It was demonstrated that excepting for irregularities which can reasonably be foreseen the value of material used in the maintenance of equipment from month to month on the Pennsylvania is approximately 54 per cent of the expenses for maintenance of equipment, while the ratio of maintenance of way materials is approximately 51 per cent of the expenses in that department of work from month to month. The use of these ratios in connection with the operating expenses authorized for the month gives an approximate value for the material required during the month, which is called the operating need.

The next step is to determine the so-called operating need by *purchase*. The distinction lies in the fact that some of the material used is not purchased, but is reclaimed from scrap or manufactured on the property from raw materials, while the purchase budget is concerned only with materials which must be acquired from outside sources with the expenditure of money. The materials reclaimed and manufactured were found to comprise approximately 17 per cent of the operating expenses, which gives an average value for the materials required by purchase for maintenance of equipment of 37 per cent of the equipment expenses if the de-

termination were handled that way. In practice, however, the ratio of 54 per cent is used directly and the actual current value of reclaimed and manufactured material as disclosed on the books, and being readily accessible, is then deducted to obtain the operating need by purchase. Thus if an operating budget authorized $12,000,000 to be spent for maintaining equipment in a typical month, the operating need by purchase for the required materials would be calculated as follows:

Operating expenses authorized	$12,000,000	
Total material required	54 per cent	$6,480,000
Less reclaimed and manufactured material ...		1,950,000
Balance to purchase maintenance of equipment (Operating need by purchase)		$4,530,000

A distinction is next made between the operating need by purchase and the *net* operating need by purchase. This is because the Pennsylvania's purchase budget is not designed to prevent the railroad from spending beyond a certain amount of money nor to place a limit necessarily upon the amount of material which users shall receive. The users must be supplied with their requirements. The object instead is to regulate the purchase of new material so that current requirements may be met without, at the same time, keeping any more material on hand than is essential to protect specific current needs. But the quantity of purchased material required for needs during the month may be more or less than the quantity of these materials which ought to be purchased during the month. If the volume of supplies already on hand, for instance, is greater than necessary, the actual purchases should be less than the requirements of purchased material for some of those requirements can be drawn from stock; otherwise, the excess stock will remain undiminished.

Unfilled Orders Considered

There may also be considerable quantities of material suited to the month's needs which, while not actually on the ground, have been ordered previously and will be received in due course if they are not already en route. It is a feature of the budget plan that this material is considered in the light of stock on hand. The explanation is found in the early period of this road's attack upon its unapplied material balance when the militant efforts to reduce the stocks by curtailing purchases were for a time defeated at every turn by a veritable flood of incoming materials covered by outstanding orders which stores officers, lacking summary reports, were temporarily at a complete loss to measure. The third step in the formation of the monthly purchase budget, therefore, is the reduction or enlargement of the operating needs by purchase sufficiently to arrive at the month's net operating needs by purchase.

Existing records of the stores and the purchasing

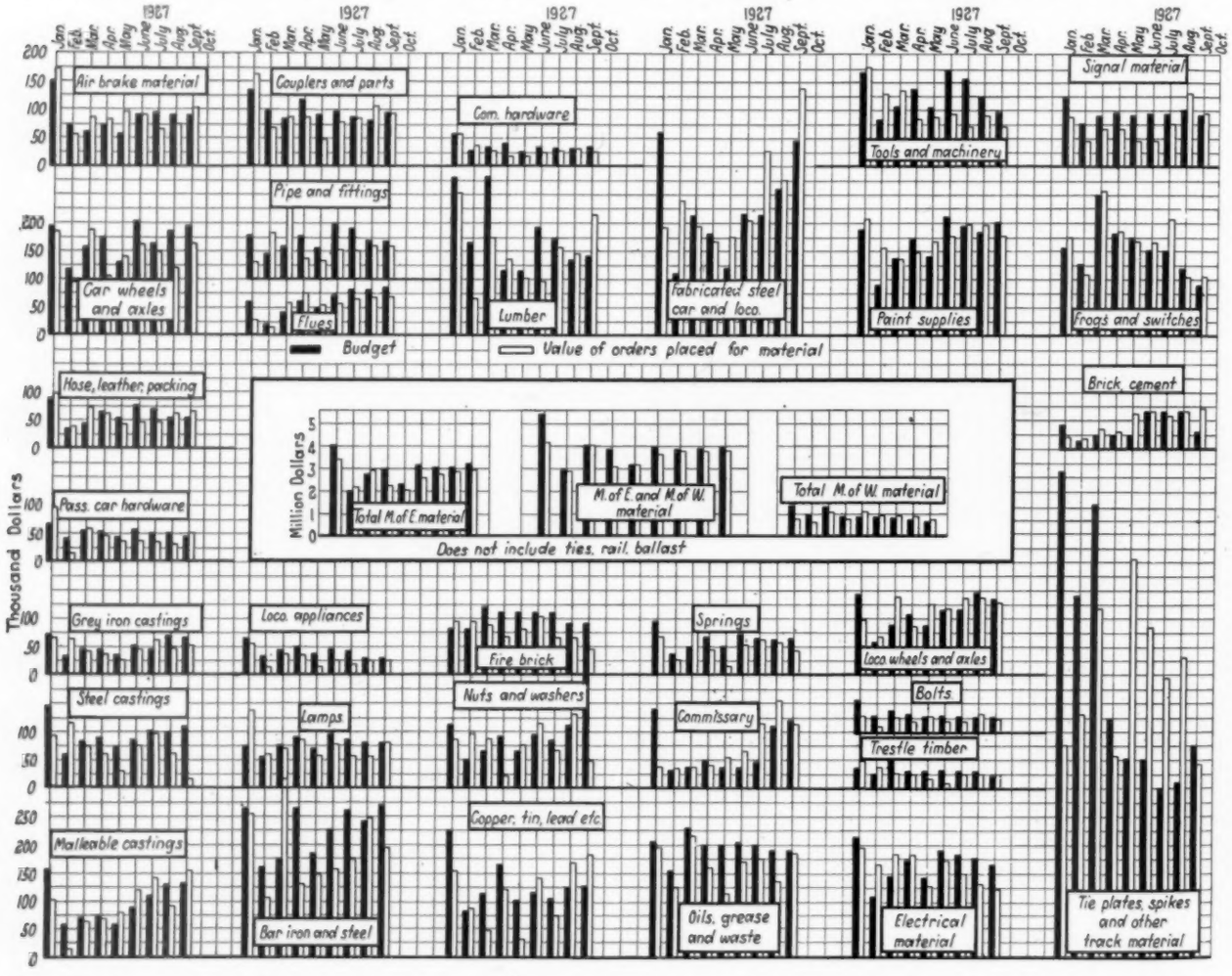


Chart Showing Purchase Budget Results During First 10 Months of 1927 for 34 Groups of Material. Black Columns Show Expenditures Authorized; White Columns, Expenditures Made Each Month

departments contain the information for this purpose. The authorities have arrived at an ideal stock balance, which is called a normal stock, and the difference between the normal stock and the actual stock on hand is either a surplus or shortage. A record of the amount of material held for additions and betterments is also kept, and the separation of this from the excess gives a net excess of material on hand. This net excess and the value of outstanding commitments or obligations of the purchasing department give the net excess of purchased material available and the difference between this figure and the total operating need by purchase is the total net operating need by purchase. An example of the basic calculations is given as follows:

Operating needs by purchase		$4,530,000
System excess stock	$500,000	
A. F. E. and construction material	100,000	
Net excess	400,000	
Outstanding commitments	100,000	
Total excess available		500,000
Net operating need by purchase		$4,030,000

Past Performance a Guide

This budget is broken down into small divisions for the best results. The number and kind of these divisions is a feature of the plan. There are 32 different classes of material for maintenance of equipment in this road's storekeeping system and a total of 45 classes, not including ballast, rails, ties and fuel. An allotment is determined for each of these classes and each of these allotments is further divided into an allotment to cover the material required for general distribution and a separate allotment for material required for this company's manufacturing operations, which are largely centralized at Altoona.

The individual allotments are not determined simply by dividing up a predetermined total, however. The procedure is just the reverse. The individual allotments are determined first. This is partly because budget preparations must be well under way by the time the operating expense figures are available. It is also considered desirable to study the conditions affecting each class of material more closely than could otherwise be done. Thus past performance is relied upon first of all in preparing the individual allotments. This is reflected by existing records, giving the total stock on hand for each account and the stock held for additions and betterments, also the volume of purchases in previous months and the volume of outstanding orders for each of these classes. From these a value is used which represents a tentative net operating need by purchase for each of these classes of material, whereupon the total of these allotments gives a tentative net operating need by purchase or a tentative budget. This total is a check on the operating need by purchase as computed from the operating budget, while the latter figure in turn is a check on the tentative figure. If the tentative figures are high they are quickly reduced by employing as a guide to the reduction in each case a schedule giving the percentage which the average value of each class of material used in previous years bears to the average total consumption and also the percentage for manufacturing work. The budget is then ready for application.

One Day to Make Budget

The preparation of the Pennsylvania's purchase budget is not as prolonged as a description might indicate. The statistics of stocks on hand and of stocks reclaimed and used, for all of the classes of material considered, are obtained from the regulation documents which the accounting department of this road prepares for 11 different accounting areas embracing 19 reports each month and which the stores department abstracts in the form required for budget control during the course of the month. The record of material on hand for additions and betterment work is secured by operating divisions and this is also consolidated as a routine operation. This basic statistical work is carried on continuously during the month and would in large part be done if no budget were prepared.

The actual preparation of the purchase budget is done in less than a day. A work sheet is prepared in the general storekeeper's office which gives for each material account the value of excess material in stock for the system, the value of material held for additions and betterment work, the excess stock on hand for manufacturing, the average value of monthly purchases, the

One Wing of Store Department Headquarters as Seen from the General Storekeeper's Office

Master Stock Book Cabinets in the Center Foreground with Clerks Checking Books and Drafting Orders on Each Side. Purchasing Department in Background Separated by Store Department only by Railing.

actual value of purchases for the same month of the previous year, the outstanding commitments for the previous month and the amount of material used on the system and in manufacturing work. From these values, which for brevity are reported only in thousands of dollars, the tentative budget for each class of material and for the system is quickly determined and recorded.

Daily Progress Record for Total Maintenance of Equipment Materials and Total Maintenance of Way Materials for Typical Month

Similar Records are Kept for Each Class of Material

This tentative figure is then revised in an hour's time when advance information of the operating expenses is received.

The schedule of allotments is issued on a single letter-size sheet which also gives the corresponding record of the orders placed in the previous month. As in all preliminary calculations, the last three digits are omitted. Thus the figure 60 opposite Account I in the budget schedule for March, 1927, signified that orders for April were to be kept within $60,000. The date of this budget was March 3.

Check Volume of Orders Daily

The problem, after the budget has been determined, is to keep from exceeding it. The allotment for each account having been fixed, a running account is kept of it by means of a statement in which the allotment is apportioned equally among the working days in the month and the aggregate value up to the end of each day is recorded progressively. Columns are also provided for each day's purchase commitments and each day's accumulated commitments opposite these progressive allotments. Each month's statement for the system totals has one page for the separated reports of maintenance of equipment material for the system and for manufacturing organized in this manner, a second page for the separate reports of the total maintenance of equipment and maintenance of way purchases, and a third page for the grand total. The purchases are taken each day from the purchasing department books. This saves the store department the expense of duplicating the work and it is a simple matter with the purchasing and stores offices on the same floor. These statements show the daily progress of purchases in their relation to authorized amounts so that steps can be taken to correct difficulties or meet contingencies which may develop during the course of the month.

Subordinate stores are neither called upon for assistance in preparing the Pennsylvania's purchase budget, nor do they become involved directly in its operation. When the size of the budget or the trend of the orders under the budget calls for a change in ordering policies at such points, this action is announced on a statement specifying the increase or reduction to be made in the average consumption for the past three months used by the storekeepers in preparing their stock needs for replenishment. This statement simply lists in one column the supply points affected, gives the symbol for the class of material to consider at each point in the second column and prescribes the present percentage of the reduction to be made at each point in the third and fourth columns. Its simplicity and directness is apparent at a glance.

Does Not Replace Stock Books

The Pennsylvania has introduced the purchase budget with full knowledge of the skeptical view prevailing that the stock book, with the complete history of each and every item of material, is the instrument for controlling stock and (when supported by a proper organization and the conventional report of inventory) should be adequate to efficient control.

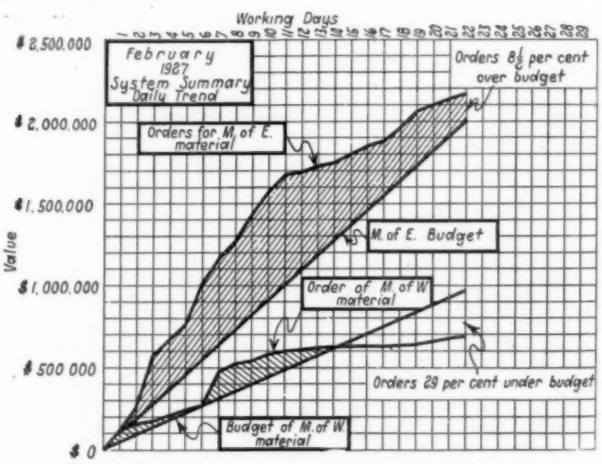


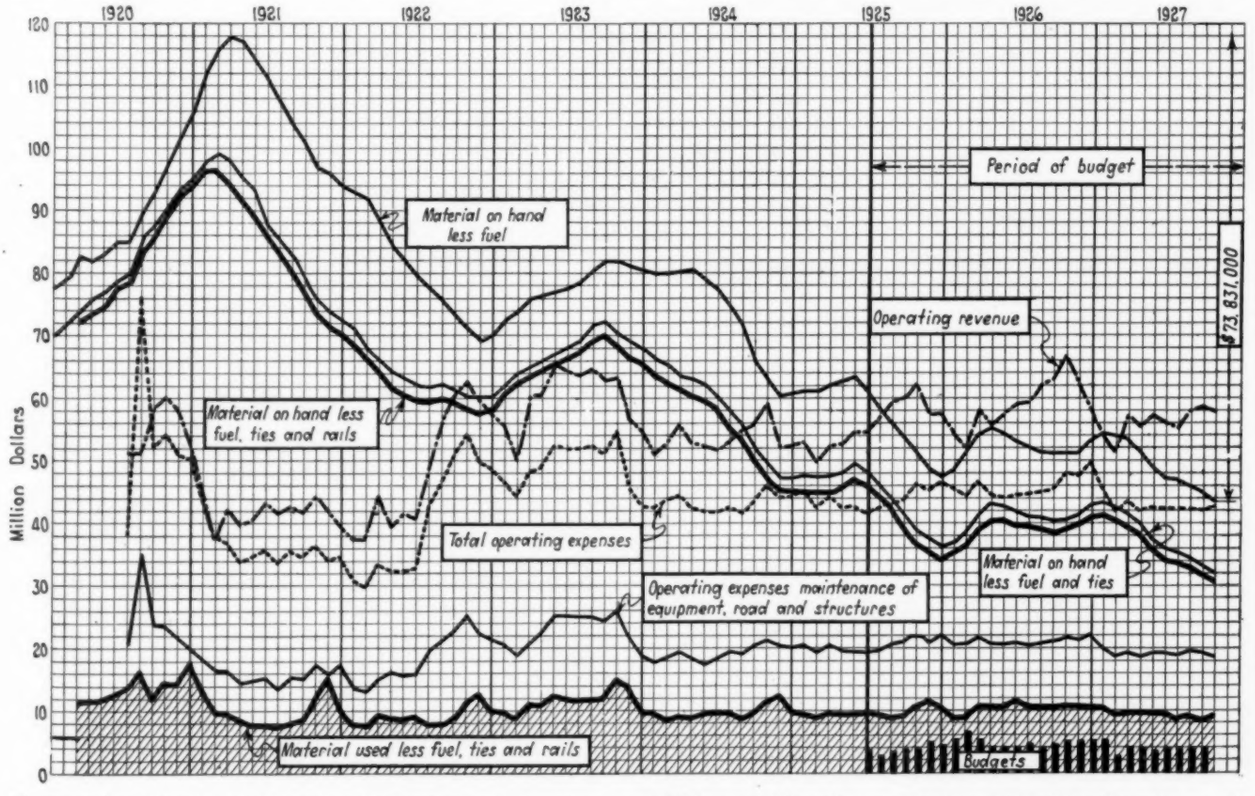
Chart Showing Operation of Budget for Total Maintenance of Equipment and Also for Maintenance of Way Materials During February, 1927

Note Relation of Order Curve to Budget Line in each case

The Pennsylvania's answer to this is that the budget plan is not a substitute for these devices, but is an instrument for controlling, when business or other conditions require, the money involved in the purchase of supplies by subjecting the general storekeeper to a check before he may take final action. Attention is directed to the reorganization which has taken place in this road's supply work in the last five years, in which much material has been centralized, and the custodians of the material have been co-ordinated. Attention is directed particularly to the standard stock book in effect over the system. It is similar to the standard recommended by the A. R. A. and is supplemented by a set of master stock books in the general office which comprises more than 300 volumes. Consistent with the typical procedure, inventories are taken at all reporting storehouses

according to a prescribed schedule which requires the inventorying of specified classes of material on prescribed days of each month and the forwarding of the regulation stock book coupons to the general office where the coupons are pasted in the master stock books for use in checking orders against available and used materials, and in filling requirements as far as possible by transfers from points with surpluses, thus reducing purchases and reducing excess or slow moving stock. It is pointed out that this work is not only carried out independently of the budget but has been given a superior operation by the practice of determining the quantities directly from the stock books instead of waiting for requisitions and also by the use of a special form with the names of all sources of supplies printed on it so that the information necessary to a transfer or purchase order is quickly provided by a mark or two in the proper place. The fact that approximately 15,000 transfers of material are made a month is offered as further evidence of the reliance placed upon stock books in the disposition of supplies on this road.

Attention is also called to the fact that, consistent with modern practice, this company has its material classified and that each month classified material reports along the lines recommended by the A. R. A. are prepared for 19 different divisions showing the stock on hand, received and used for each class of material. These statements receive the attention of the proper storekeepers and also are available to eight material supervisors who are continuously checking the status of material on the ground.



Comparative Trends of Operating Revenues and Expenses, and Values of Material on Hand and Used by Months on the Pennsylvania from 1920 to the End of 1927—Note Huge Reduction in Material on Hand

Stock Books Not Adequate

There is no disagreement with those who want the stock book preserved. The difference arises only on the question of adequacy. The Pennsylvania System, it is pointed out, is a large road. It ranks first among the railroads of the country in total trackage, total assets, total freight and passenger traffic, and gross revenue. The mileage of this road is 11,100 and the trackage 26,900. During 1926, requirements of material for operating and maintenance amounted to $161,068,000. This expenditure included $41,989,000 for fuel, $9,595,000 for rail and $11,365,000 for ties, but it also included $9,516,000 for frogs, switches and rail fastenings, $4,650,000 for wheels and tires, $1,562,000 for locomotive tubes, $4,709,000 for lumber and timber, $7,409,000 for electrical materials, $2,777,000 for lubricating oils and grease, etc., and $2,307,000 for air brake material.

The extent and complicity of its supply work is further indicated by the fact that these purchases were made from some 7,500 individuals, firms and corporations, embraced 75,000 separate sizes and varieties of stock and called for more than 250,000 requisitions and 500,000 sellers' invoices.

Material is received and held for use at 3,905 places comprising 34 main stores and 26 sub-stores from which material is delivered for working stocks to 676 minor shops, engine houses and inspection points for maintenance of equipment material as well as small working supplies for maintenance of way use of which 118 accommodate the master carpenters, 143 the supervisors of signals, 227 the supervisors of track and 2,681 the section houses, though they are under the control of the general storekeeper. The great bulk of the material is concentrated in the department's 34 main stores but it is pointed out that the material at all points form the stock of unapplied material which must be kept in control.

The necessity of stock books in operations of this

scope is that it follows the history of each item of material. The futility of a system of control that does not analyze each unit is granted in supporting the budget, for the knowledge that material of a certain value is carried is quite as often apt to be injurious as useful if the material turns out to be bolts when nails are required but it is argued that a knowledge of value is quite as essential to the best results. It is emphasized that a railroad, while responsible for service to the public, is nevertheless a business conducted for profit and that the measure and substance of profit is money. The basis of the stock book is consumption, but constantly in the cycle of efficient control this consumption must be visualized in terms of money if a proper balance of operations is to be obtained. The insufficiency of the stock book alone to control is indicated, it is argued, by the universal demand of stores officers themselves for

PENNSYLVANIA RAILROAD COMPANY
GENERAL STOREKEEPER'S BUDGET ALLOWANCE FOR COMMITMENTS
MONTH OF MARCH 1927
(000 Omitted)

Acct. No.	Budget for March Phila.	Alt.	Total	Feb. Commitments Phila.	Alt.	Total	Acct. No.	Budget for March Phila.	Alt.	Total	Feb. Commitments Phila.	Alt.	Total
1	45	15	60	33	22	55	52	250	-	250	106	-	106
2	135	23	158	89	4	93	53	800	-	800	430	-	430
3	33	9	42	35	3	38	54a	5	-	5	2	-	2
4	39	15	54	7	7	14	55	90	-	90	42	-	42
7	35	8	43	62	3	65	56	50	-	50	38	-	38
8	42	39	81	66	49	115	57	10	-	10	2	-	2
9	57	5	62	18	-	18	58	25	-	25	19	-	19
10	17	11	28	3	3	6	59a	5	-	5	1	-	1
11	77	6	83	70	-	70	59b	5	-	5	1	-	1
12	18	23	41	3	11	14	60	30	-	30	10	-	10
13	25	13	38	2	4	6	61	15	-	15	6	-	6
14	44	15	59	30	50	80	63	5	-	5	11	-	11
16	39	26	65	44	36	80	64	35	-	35	14	-	14
18	28	17	45	7	6	13							
19	55	120	175	24	79	103	M W	1325	-	1325	682	-	682
20	42	13	55	59	1	60							
21	28	9	37	27	6	33	TOTAL	3122	953	4075	2054	797	2851
22	258	22	280	53	10	63							
23	113	7	120	93	4	97	FAI	136	64	200	136	64	200
24	7	106	113	6	82	88							
26	2	15	17	-	22	22	TOTAL	3258	1017	4275	2190	861	3051
27	20	194	214	21	217	238							
28	47	17	64	74	25	99							
29	128	102	230	94	28	122							
30	125	13	138	139	15	154							
34	37	12	49	21	7	28							
35	2	-	2	3	-	3							
36	36	2	38	33	1	34							
38	110	34	144	135	30	165							
42	78	30	108	89	35	124							
44	45	42	87	32	27	59							
M E	1787	963	2750	1372	797	2169							

Copy of a Typical Purchase Budget

Gives Allotments in Thousands of Dollars for Each Class of Material and assigning the Proportions for Philadelphia representing Maintenance Work and for Altoona representing Manufacturing

monthly statements disclosing the value of unapplied stock on hand and consumed. Such statements reflect past performance but are in a measure "water over the dam" and are of no direct assistance in guiding the tremendous operations of the immediate present. Indeed certain of such statements are not available when preparations for the current month must be made.

Thus the purchase budget is pictured as a needed link in the supply chain that an operation such as the Pennsylvania requires. In the same way and on the same principle that operating expenses are budgeted to keep operations in harmony with revenue the purchase budget is devised to keep the flow and status of material in harmony with operating expenses. The judgment concerning the future which even the storekeeper must use in operating his stock books is checked by judgment based on a knowledge of the actual expenses and a picture is given of each day's operation in relation to fixed objectives, which makes it much easier for the road to detect and adjust itself in a moment to those unexpected contingencies or conditions which, if not seen in their aggregate and in relation to total operations, may easily cause far reaching disturbance. Finally it is said of the Pennsylvania budget that after all it only represents the result of correlating and systematizing those efforts at controlling stock outside of the stock book which have always been practiced more or less in purchase operations, though often without the knowledge of stores officers. The needs of the user must be met, but these in turn, it is held, must be in harmony with value and the best method of injecting value into the system is by a plan which follows the value day by day, particularly when the purchasing policy is to buy only for current requirements as this road has always done.

While this road's purchase budget is both developed and administered at headquarters, and does not depend for its development or execution upon the subordinate stores officers, it is explained that with the small amount of office work done in even the large stores and their number and distribution, such a procedure would be impracticable at present even if it were desirable.

Over Four Million Spent Each Month

The budget plan was introduced in June, 1925. Except for fuel, rail, cross-ties, and certain miscellaneous items, all materials and supplies, aggregating $4,000,000 to $4,500,000 per month, are embraced by it. It has been found that the rail, track ballast and cross-ties can be controlled more satisfactorily under a separate plan. Cross-ties are requisitioned on the purchasing agent about one year in advance of their need, to give the necessary time for seasoning and treatment. The quantities are based on the records of consumption during the preceding year, supplemented by the best information available regarding the prospective business conditions during the following year. Switch ties are handled in the same way. The rail program, on the other hand, is determined by the executives and distribution by months is arranged between the chief engineer, general purchasing agent and stores manager. After the rollings are arranged by the mills, the general storekeeper is given that information and arrangements are made by the store department for joint bars, bolts, nut locks, tie plates, etc., which are received, usually, within one week of the actual delivery of the rail. The values of ties and rail are included in the operating expense budget but are eliminated in arriving at the purchase budget.

Big Reductions in Stock

Three charts are presented to illustrate the conditions under which the purchase budget operates and the results that are obtained. In the first chart are shown the trends of the value of unapplied materials and the consumption of materials issues to closed accounts, compared with revenue, total operating expenses and total expenses for maintenance of equipment and maintenance of way and structures. The chart shows a notable uniformity in the consumption of material for the maintenance of equipment and maintenance of way in recent years and the uniformity of its relation to the operating expenses for these departments of work is also brought out. The extent to which total operating expenses exceed those for maintenance of way and equipment illustrates the reason why the purchase budget formula is based upon the maintenance of way and equipment expenses rather than upon total operating expenses.

A spectacle of the chart is the great reduction in the value of unapplied materials in the last six years, the value of material on hand including ties but excluding fuel at the end May, 1925, when the purchase budget was introduced, being approximately $55,000,000 less than the peak value in 1921, while the value at the end of

October, 1927, the last month on record, represents a further reduction of approximately $19,000,000 or a total of almost $74,000,000. Excluding ties and rails as well as fuel, the reduction from the peak in 1921 to last October was approximately $66,000,000. With the assistance of the budget, stores operations have been reduced to the basis of a 3.1 months' supply.

The second chart gives an example of the operation of the budget and also illustrates the significance of converting the monthly allotments into a daily trend. The curve marked "maintenance of equipment budget" passes through those points on the chart which represent each day's allotment on the accumulative plan, while the line marked "orders for maintenance of equipment material" passes through the points representing the accumulated values of the orders placed throughout the month. Theoretically, orders should not cross the budget line. In this case the orders for equipment material exceeded the budget and by the 10th of the month were twice the prorated allotment but as a result of the attention immediately given, demands were reduced and the authorized allotment for the over-run was reduced to 8½ per cent. In the case of maintenance of way materials, the orders exceeded the budget in the first part of the month but by the end of the month the total value of orders was considerably less than the authorized amount.

Variations from Total Budget Small

The third chart gives the history of budgeting in the more important classes of material for each of the first 10 months of 1927. The three central charts refer to the budget for total maintenance of equipment material, total maintenance of way and structures material, less fuel, rail, ties and the total maintenance of equipment and maintenance of way and structures material, respectively. These are supplemented by 31 charts for as many groups of the materials which are included in the totals. The black column in each case gives the size of the authorized allotment in each month while the white column shows the volume of orders placed during the month under this allotment. The vertical distance between each square represents $25,000 in the case of the supplementary charts while the scale is $1,000,000 in the case of the central charts.

The miscellaneous charts show much variation, not only in the size of the allotments from month to month, but in the degree to which orders followed the budget. This is particularly the case with tie plates, spikes and other track material, which strikingly disclose the problem of the storekeepers in anticipating all the conditions that affect the use of these materials, even with the aid of stock books and other records of past performance. In contrast with this, the charts of the totals show marked harmony between the budget authorized each month and the value of the orders placed. In only two cases during the 10 months did the total value of orders exceed the total budget for maintenance of way and maintenance of equipment materials; and the average variation from the budget was 7 per cent.

Stress is particularly laid upon the harmony between total expenditures and total budget in discussing the efficiency of the budget plan, for, as explained, while the effort is made to keep the orders in line with allotments in all the various classes budgeted, it is only with the total budget that observance is insisted upon. It is permissible under the budget plan and it is regularly practiced to utilize the gain in one class of material during the month to meet the demand for additional money of another class as long as the total budget is not exceeded.

That much remains to be done in perfecting the construction and administration of the plan is recognized by the authorities, but at the present stage of operations the results are said to be increasingly satisfactory. Indeed, the difficulties encountered with the budget are considered evidence of the need for such a supplementary plan of controlling the vast expenditures of material which this road is required to make and control currently for its upkeep and operation.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 7, which included New Year's Day amounted to 74,062 cars, a decrease of 179,828 cars as compared with the corresponding week of last year, which did not include the holiday, and of 153,560 cars as compared with 1926. Loadings of all commodities were smaller than last year. Coal loading amounted to 174,979 cars, as compared with 213,335, and ore loading was 7,128 cars, as compared with 9,677 cars. Loadings by districts were also less than in the corresponding week of 1927 or 1926. The summary as compiled by the Car Service Division of the American Railway Association, follows:

WEEK ENDED SATURDAY, JANUARY 7, 1928.

Districts	1928	1927	1926
Eastern	167,760	209,424	203,790
Allegheny	151,760	185,637	181,257
Pocahontas	46,375	58,515	56,471
Southern	121,113	149,734	139,497
Northwestern	92,562	110,750	115,077
Central Western	113,560	140,486	137,429
Southwestern	60,932	79,344	74,101
Total West. Districts	267,054	330,580	326,607
Total All Roads	754,062	933,890	907,622
Commodities			
Grain and Grain Products	36,600	44,137	48,089
Live Stock	29,080	34,248	37,279
Coal	174,979	213,335	193,313
Coke	10,035	11,518	17,611
Forest Products	44,732	61,828	59,332
Ore	7,128	9,677	10,619
Mdse., L. C. L.	199,772	239,662	239,279
Miscellaneous	251,736	319,485	301,758
January 7, 1928	754,062	933,890	907,622
December 31, 1927		679,600	734,281
December 24, 1927		829,006	768,040
December 17, 1927		868,162	944,396
December 10, 1927		877,600	992,455

The freight car surplus for the period ended December 31 averaged 464,005 cars, as compared with 406,694 cars in the periods ended December 23. The total included 224,247 box cars, 183,638 coal cars, 25,888 stock cars and 13,929 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended January 7 totalled 51,973 cars, an increase over the previous week of 2,666 cars and a decrease from the same week last year of 5,417 cars, the New Year's holiday being on the previous Saturday and, therefore, a large factor in the comparison.

Cumulative totals		Total cars loaded	Total cars rec'd from connections
Eastern Division	1928	29,084	26,094
	1927	34,722	27,480
	1926	32,796	27,062
Western Division	1928	22,889	2,664
	1927	22,668	2,863
	1926	21,711	2,483
Total for Canada	1928	51,973	28,758
	1927	57,390	30,343
	1926	54,507	29,545

THE SOUTHERN PACIFIC retired 204 employees on pension during 1927. These employees had an average service of 32 years.

Byram and Scandrett Head Milwaukee As Receivership Ends

New chairman of board and president take office following approval of reorganization plan by Interstate Commerce Commission

HARRY E. BYRAM and Henry A. Scandrett took office as chairman of the board of directors and president, respectively, of the Chicago, Milwaukee, St. Paul & Pacific on January 16, marking the termination of the receivership of the Chicago, Milwaukee & St. Paul—the largest railway system ever in receivership in the history of the United States.

Just before the first of the year Mr. Byram, operating receiver of the Milwaukee, advised the reorganization managers that he did not care to assume the presidency of the new company and he was selected as chairman of the board. Mr. Scandrett, vice-president of the Union Pacific, was named as president, and he succeeds to the active direction of the operation of the Milwaukee, replacing the three receivers—Mr. Byram, Mark W. Potter and E. J. Brundage.

H. E. Byram

H. A. Scandrett

On January 10 the Interstate Commerce Commission approved the plan of reorganization of the company, and on the following day Federal Judge James H. Wilkerson of Chicago issued an order directing the receivers to execute and deliver the deed of transfer to the reorganized company. The signatures of the three receivers were placed upon the instrument in Chicago on the same day and the final execution of the deed took place in New York with the signing of the necessary papers by the trustees January 14.

The approval of the reorganization plan by the Commission followed a foreclosure sale of the railroad after a year and a half of receivership, when representatives of the majority security holders bought in the property on November 22, 1926 for $140,000,000, a price about $18,000,000 higher than the upset figure fixed by the United States district court. On April 1, 1927, the reorganized company was incorporated in Wisconsin as the Chicago, Milwaukee, St. Paul & Pacific.

The reorganization scheme, which is known as the Kuhn, Loeb-National City plan, provides for a reduction of about 35 per cent in the fixed charges to be borne by the railroad. The reduction in fixed interest-bearing securities will amount to $180,000,000, resulting in a net reduction in annual fixed interest charges on funded debt from $21,800,000 to about $14,000,000

Provision has also been made for the conversion of $185,000,000 of obligations maturing before 1937 into long term obligations. By payments by existing stockholders of $28 per share on the preferred stock and $32 per share on the common stock the company will raise about $70,000,000 to be applied in part to indebtedness. In return for this assessment the stockholders will receive new bonds amounting to about $60,000,000. By immediate adjustment of the $55,000,000 debt to the United States government, with payment of $52,000,000 in cash and $3,000,000 in pre-

ferred stock, the company will effect a saving of about $2,000 per day in interest charges.

Along with the approval of the reorganization plan the Commission authorized the issuance of $106,395,096 of 50-year 5 per cent mortgage bonds, $182,873,693 of 5 per cent convertible adjustment mortgage bonds, $118,845,800 of preferred stock and 1,174,060 shares of common stock of no par value. The company may also issue additional amounts of stock up to 914,369 shares of common and $91,436,900 of preferred as it is found necessary to convert the 5 per cent convertible adjustment bonds into stock.

Mr. Byram expressed his confidence in the future of the reorganized property and the territory which it serves in a statement issued immediately prior to taking office as chairman. He said in part:

"The reorganization plan, I believe, ultimately will return the Milwaukee to its former high position in the railroad financial field. The road went into the hands of receivers for two reasons—adverse economic conditions in the Northwest and a top-heavy financial structure. The Northwest is returning to prosperity and the crushing weight of heavy fixed charges will be greatly lightened by the reorganization. The principal result of the new financing will be to effect a net reduction of annual fixed charges from about $21,800,000 to less than $13,600,000. The estimated earnings of the system are around $20,000,000 annually. The cash requirements of the road will be met by one of the lightest assessments ever made in the reorganization of a large transportation system. Of the $70,000,000 to be realized by assessments, $55,000,000 will be returned to the government to liquidate loans made during the period of federal control.

"One of the unique features of the receivership has been the steady improvement of the property of the road during the last two years. The manner in which service has been maintained, operating efficiency increased and a continuous program of improvement carried on by the management is unprecedented in railroad history. In the thirty months ended last June the Milwaukee road had piled up an especially notable list of improvements. It had constructed or contracted for $15,000,000 worth of rolling stock and had expended for other equipment over $4,000,000; for shops and engine houses, including machinery, $1,750,000; for heavier rail and additional tracks, $4,500,000; for other improvements of road, $7,000,000."

The causes which led to the placing of the Milwaukee in receivership on March 18, 1925, had their inception prior to the election of Mr. Byram as president in October, 1917, and were largely of a nature over which he had no control. Officers and stockholders of the railroad testifying before the Interstate Commerce Commission in the investigation of the receivership in 1926 were practically agreed that the difficulties of the company were due to an inadequate rate structure, general business depression in the Northwest, and the burden of operating the Puget Sound extension. Discussing the latter influence Mr. Potter, one of the receivers, pointed out that for several years after its completion in 1909 it was operated at a profit, but that with the opening of the Panama Canal in 1914 it began to show less profits and has since failed to pay its way. With the construction of the Puget Sound extension, double-tracking of the main line in Iowa and between Minneapolis and Aberdeen, S. D., and the electrification of 660 miles of the Coast extension, prior in the minds of many observers to the really urgent necessity for these improvements, the Milwaukee built for the needs of the future.

In spite of the corporate difficulties of the railroad notable improvement has been made under Mr. Byram's management in operating results since federal control. In comparison with 1920 the average gross train load was 23 per cent greater in 1927, the number of freight cars per train was increased 24 per cent, the average miles per hour of freight trains was 19 per cent greater, the pounds of coal used per 1,000 gross ton-miles was 21 per cent less and the car miles per day increased 15.6 per cent. In the same period the cost of locomotive repairs per mile was reduced about 33 per cent and the number of miles run by locomotives between failures was increased from 12,400 to over 75,000 (counting as a failure any trouble which caused a delay of five minutes or more, even though the delay was afterwards made up). The operating ratio was reduced from 87.18 in 1921 to 80 in 1926.

One of the factors which brought about the receivership was the general business depression in the Northwest. The last normal traffic year which the Milwaukee may be said to have had was that of 1916 when it handled a total of 10,747,233,415 revenue ton-miles. In 1921, immediately after the return of the railroads to private control, the revenue ton-miles dropped to 8,283,212,410 although in 1926 traffic recovered to such an extent that it aggregated 11,978,810,935 ton-miles. The Milwaukee has suffered along with other railroads from the inroads of automobile competition and as a consequence its revenue passenger miles have decreased from 921,993,832 in 1916, to 817,189,840 in 1921, and 661,403,735 in 1926.

In addition to reorganizing the operating practices on the road a number of important steps have been taken during Mr. Byram's administration to strengthen its position in competition with its neighbors. One of the first of these steps was the acquisition of the Chicago, Terre Haute & Southeastern in 1921 and the Chicago, Milwaukee & Gary in 1922. Until that time practically no bituminous coal was mined along the lines of the railroad and it was at a disadvantage in obtaining an adequate supply of fuel for its own use except at heavy cost through payment of freight charges to other lines. The C., T. H. & S. E. penetrates the bituminous coal fields of western and southern Indiana and eastern Illinois, and its acquisition has enabled the Milwaukee to obtain not only the coal required for its own use, but to develop a commercial traffic from that region to points in the West and Northwest. By means of the Chicago, Milwaukee & Gary the company has been able to move this coal on to its main line without traversing the congested Chicago terminal district.

Another improvement effected during Mr. Byram's administration was the electrification of the line over the Cascade Mountains between Othello, Wash., and Seattle and Tacoma, which was placed in operation in 1920, adding 207 miles to the 440 miles previously electrified in Montana. On the existing properties special attention has been paid to the modernization of the water treating facilities and water stations; large expenditures have also been made for the renewal of bridges.

The Milwaukee has been particularly aggressive of late in passenger service. As a means of increasing its traffic to the western national parks it completed the construction in 1927 of a hotel at the Gallatin Gateway entrance in Yellowstone National Park. The Milwaukee was the first railroad in the United States to equip through passenger trains with roller bearings, the 12 complete trains needed to operate "The Olympian" between Chicago and the Pacific Coast and "The Pioneer Limited" between Chicago and St. Paul and Minneapolis being fitted with roller bearings in 1927,

involving the installation of this device on more than 125 passenger cars.

With the reorganization plan in effect the financial burdens which handicapped the property have been scaled down so that Mr. Scandrett enters the presidency with an excellent opportunity to take advantage of the prosperity which Mr. Byram predicts for the Northwest territory which the Milwaukee serves. Mr. Scandrett comes to the Milwaukee after 26 years spent in directing a variety of phases of the Union Pacific business requiring legal talent. Lately he has devoted considerable time to wage proceedings before arbitration boards and mediation officials as counsel for the Conference Committee of Managers of the western railways. Mr. Scandrett has become known as an expert in rate matters and other matters requiring presentation before the Interstate Commerce Commission. Since January 1, 1911, he has been successively assistant interstate commerce attorney of the Union Pacific, interstate commerce attorney of the Union Pacific and the Southern Pacific, assistant director of traffic and commerce counsel of the Union Pacific, traffic assistant to the Central Western regional director of the United States Railroad Administration, valuation counsel and commerce counsel of the Union Pacific, and from April, 1925, until his election as president to the Milwaukee, vice-president of the U. P.

Mr. Scandrett was born on April 8, 1876, at Faribault, Minn., and attended the Shattuck Military Academy in that city from 1889 to 1894. He graduated from the University of Minnesota in 1898 and completed his legal education at that university in 1900. The following year he entered railway service as a claim adjuster on the Union Pacific, being transferred to the law department in 1901 as assistant attorney for Kansas and Missouri at Topeka, Kan., where he remained until he entered the commerce field on the U. P. in 1911.

As Mr. Byram relinquishes the position of co-receiver of the Milwaukee, he finishes a term of more than 10 years as that railroad's chief executive, having been elected president on October 1, 1917, while vice-president of the Chicago, Burlington & Quincy. He was born on November 28, 1865, at Galesburg, Ill., where he entered railway service as a call boy on the Burlington at the age of 16 years. Shortly after he became a stenographer in the office of the general superintendent at Chicago and was later promoted to chief clerk to the superintendent of terminals at the same point. In 1889 Mr. Byram left railway service, to return in 1894 as a clerk in the office of the general manager of the Great Northern at St. Paul. He was advanced to chief clerk in the office of the vice-president and in March, 1898, he was appointed assistant general superintendent of the Montana Central (now a part of the Great Northern). From October, 1899, to October, 1902, he was superintendent of the Cascade division of the Great Northern, with headquarters at Everett, Wash., and he was then appointed assistant to the first and fourth vice-presidents of the Chicago, Rock Island & Pacific, with headquarters at Chicago.

On February 1, 1904, he was promoted to general superintendent of the Southwestern district of the Rock Island, with headquarters at Topeka, Kan., where he remained until July, 1904, when he became general superintendent of the Nebraska district of the Burlington at Lincoln, Neb. In May, 1909, he was promoted to assistant to the vice-president of the Burlington at Chicago and in February of the following year he was elected vice-president. Since 1917, Mr. Byram has been president of the Milwaukee, except during federal control of the railroads when he served as federal manager of the Milwaukee, and during the receivership when he served as co-receiver.

Motor Transport Regulation Proposed

WASHINGTON, D. C.

A PLAN of federal legislation providing for the regulation of motor vehicles operated as common carriers of passengers or property in interstate or foreign commerce over the public highways by carriers now subject to the interstate commerce act, either directly or through subsidiaries, or by independent operators, is recommended as being in the public interest in a report proposed by Leo J. Flynn, attorney-examiner of the Interstate Commerce Commission, made public by the commission on January 16 after an extensive investigation of motor coach and motor truck operation. The report is intended to serve as the basis for oral argument before the commission on February 10.

After a comprehensive review of the record taken at the hearings held in various parts of the country the report states its recommendations in a series of 30 conclusions. These provide for a complete system of regulation, not including motor vehicles operated by the owners incidentally to the conduct of their business nor to "contract carriers" at this time. According to the recommendations original jurisdiction in the administration of regulation would be vested in such state regulatory bodies as notify the Interstate Commerce Commission that they will act, and the federal commission would be given original jurisdiction to act whenever a state board fails to notify it of its acceptance.

Joint boards, composed of two or more state board or representatives of state boards and of the federal commission, would be authorized to act where the commerce is carried on in two or more states. Provision is also made for an appeal to the federal commission.

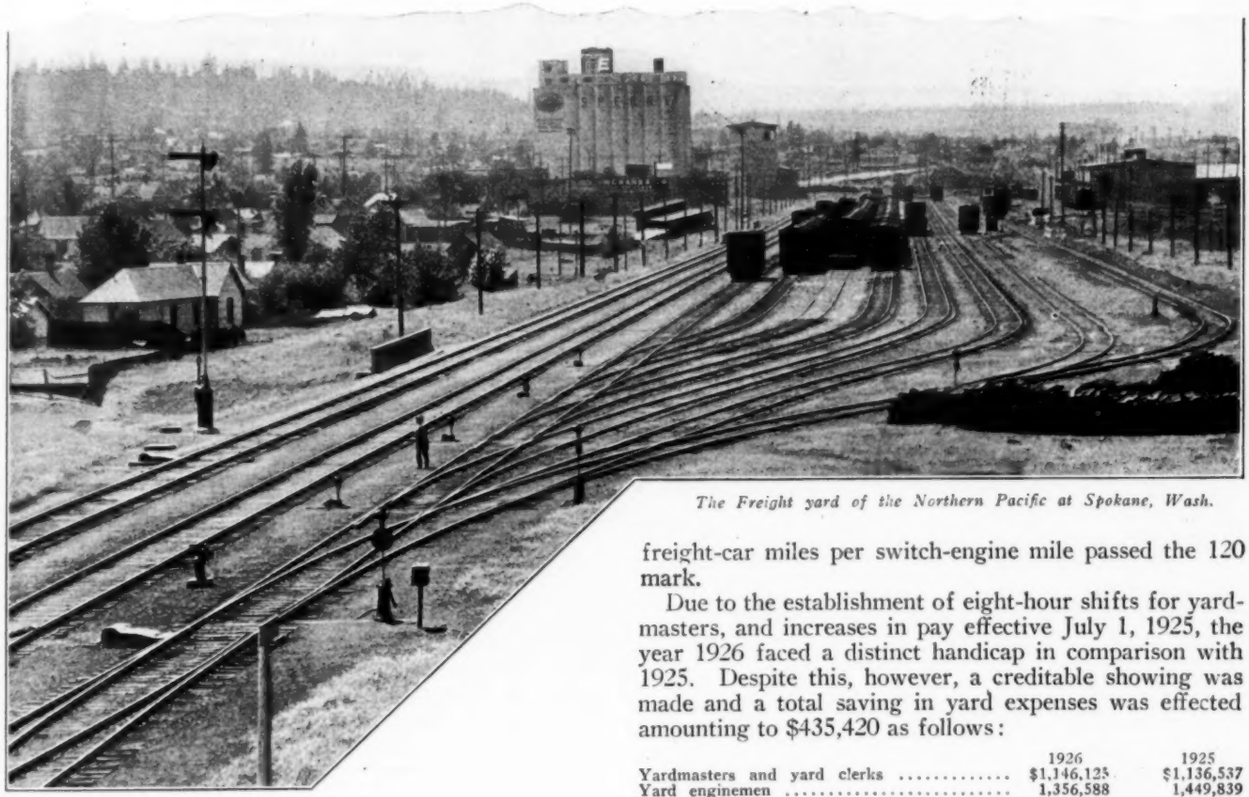
"Steam railroads are, and so far as now can be discerned will remain, the backbone of the national transportation system," the report says, and "they alone can be relied upon for mass transportation and long-distance hauls of passengers and of goods," but as indicating the remarkable growth of motor vehicle transportation it points out that although the first patent for an internal combustion engine for the propulsion of a vehicle was granted in the United States as late as 1895, the total registration in the United States in 1926 was 8,225,859 passenger cars and 1,006,082 trucks.

Reference also is made to the fact that private automobiles and motor coaches "have made heavy inroads on railway passenger revenues particularly since 1920," and that "a large volume of short-haul less-than-carload traffic formerly handled by the steam railroads now moves in motor trucks." On the other hand the report says that the volume of traffic in automobiles and autotrucks and accessories increased from 1920 to 1926 by 110 per cent and that the automobile has greatly stimulated the construction of paved highways and that this has resulted in a greatly increased traffic in road-building materials. It is declared to be probably true that in the aggregate the business lost to the new highway agency "has been more than offset by the gain from new traffic created by the development of the automobile industry."

A detailed abstract of this report will appear in the *Motor Transport Section*, to be issued with next week's *Railway Age*.

Daily Cost Figures a Valuable Aid

Northern Pacific effects large savings in yard and transfer operations by use of current statistics



The Freight yard of the Northern Pacific at Spokane, Wash.

AS a result of more efficient supervision and the supplying of yardmasters with daily statistics of their costs, the Northern Pacific effected a saving of $435,420 in yard expenses in 1926, as compared with 1925. The use of similar methods in supervising freight station and transfer operations resulted in a saving of $329,066 in this department during the same period. The available figures for 1927, as shown later, indicate a continuation of this improvement.

Comparative statements of each day's costs, together with the business handled are on the desks of yardmasters and supervisors of freight stations and transfer platforms early the following morning. Of course, some of these figures must be based on estimates, but the estimates approximate the actual figures closely.

Improved Yard Operation

Yard operation, as measured by the switch-engine miles and the average number of freight-car miles per switch-engine mile, has shown a distinct improvement, as indicated by the graphs in Fig. 1 and Fig. 2. In 1926, as compared with 1925, freight-car miles increased 3.5 per cent, while switch-engine miles decreased 5.4 per cent and car mileage per switch-engine mile increased 9.4 per cent, averaging 102.9 for 1926. The curves for each year show the same general trend, with peaks in January, March and October in each instance, but each year a marked reduction has been shown in the total switch-engine miles. In August, 1927, for the first time, the freight-car miles per switch-engine mile passed the 120 mark.

Due to the establishment of eight-hour shifts for yardmasters, and increases in pay effective July 1, 1925, the year 1926 faced a distinct handicap in comparison with 1925. Despite this, however, a creditable showing was made and a total saving in yard expenses was effected amounting to $435,420 as follows:

	1926	1925
Yardmasters and yard clerks	$1,146,125	$1,136,537
Yard enginemen	1,356,588	1,449,839
Yard conductors and brakemen	1,931,013	2,051,916
Fuel for yard locomotives	1,113,104	1,343,693
Yard supplies and expenses	39,979	40,244
Total	5,586,809	6,022,229

Daily cost data has materially assisted yardmasters in conducting operations economically. It has been found that keeping the yardmasters currently advised as to costs, enables them to control such costs far more efficiently. This report, shown as Fig. 3, gives complete details as to wages, cars handled, engine shifts and cost per car.

The Freight Transfer Platform at Spokane, Wash.

With the figures for the day before on his desk early in the morning, the yardmaster is in a position to take prompt action to remedy any situation which is increasing his cost unduly. Any unnecessary engine shifts, switchmen, car riders, etc., are apparent immediately

and cannot continue for weeks as might be the case if the yardmaster was not in possession of all the facts regarding costs daily.

General yard supervision is facilitated by a monthly report of yard operation results, which gives in detail for each yard the number of cars handled, engine shifts and cost per car. The month's operations at each yard are compared with those of the same month of the preceding year and with the preceding month. It is interesting to observe how closely the decrease in engine shifts parallels the decrease in cars handled.

Table No. 1—Yard Operation Results, 1927

	Cars Handled			Engine Shifts		
	1927	1926	Decrease %	1927	1926	Decrease %
April	832,983	863,671	3.55	6,554	6,921	3.85
May	855,518	882,958	3.10	6,678	6,883	3.00
June	851,685	891,112	4.42	6,570	6,924	5.11
July	833,247	900,398	7.46	6,510	7,064	7.84
August	1,033,765	1,044,226	1.00	7,365	7,598	3.05
September	1,156,775	1,080,311	7.07*	8,535	7,952	7.34*

* Increase

Table 1 shows this trend for the six months from April, 1927, to September inclusive. This table demonstrates clearly the value of daily yard cost statistics for

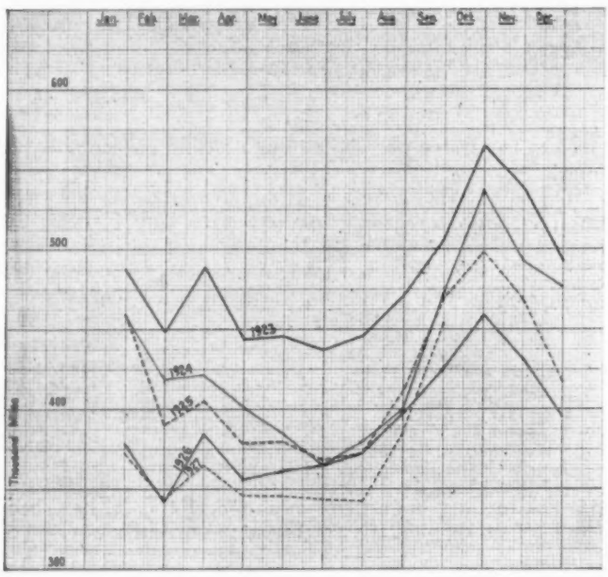


Fig. 1. Total Switch Engine Miles, N. P. System.

it shows that the large fluctuations in traffic have been followed very closely, whether the traffic is on the upward or downward trend, by the number of yard locomotives used. In fact, during an average monthly decrease of 3.90 per cent in the number of cars handled, the decrease in engine shifts averaged 4.57 per cent, proving conclusively that engines were being taken off at once when the traffic being handled did not justify their continuance.

Some of the yards have made particularly excellent records in this respect. For the purpose of comparing yards of varying size, Tacoma, Wash., where about 40,000 cars are handled per month, and Paradise, Mont., which handles about 7,800 cars per month, have been selected. The results obtained under various conditions of traffic for the first nine months of last year, as compared with the same period in 1926, are given in Table 2.

Improved Freight Transfer Operations

A daily cost statement is also prepared covering the operation of freight transfers and the larger freight stations. This report is prepared for the local agent and used in a fashion similar to the daily yard cost reports. The total amount of wages earned by each class of employee is shown separately, together with the net man hours of each class. The total cost is also given, with comparisons of the cost for the previous day and for the same day of the previous year. A statement of the tonnage actually handled through the freight house or over the transfer platform is also included. This is on a similar comparative basis, and is shown in terms of both cars and tons, divided between freight received, freight forwarded and freight transferred. At the end of each month, a consolidated statement is prepared for each station. This gives the same information for the entire month as is shown on the daily statement and, in addition, provides space on the back for detailed explanations of any increases or decreases in cost that may have occurred during the month.

Like the daily yard cost statements, these reports have materially assisted agents in conducting operations efficiently. For example, in 1926, a saving of $329,066 was made in station service cost, as compared with 1925, as follows:

	1926	1925	Saving
Station employees	$4,536,812	4,792,962	256,150
Station supplies and expenses	320,811	393,727	72,916
	4,857,623	5,186,689	329,066

During 1926, the cost per ton of freight handling was 80.7 cents, as compared with 90.3 cents for the preceding year.

That these savings were continued in 1927 is indicated

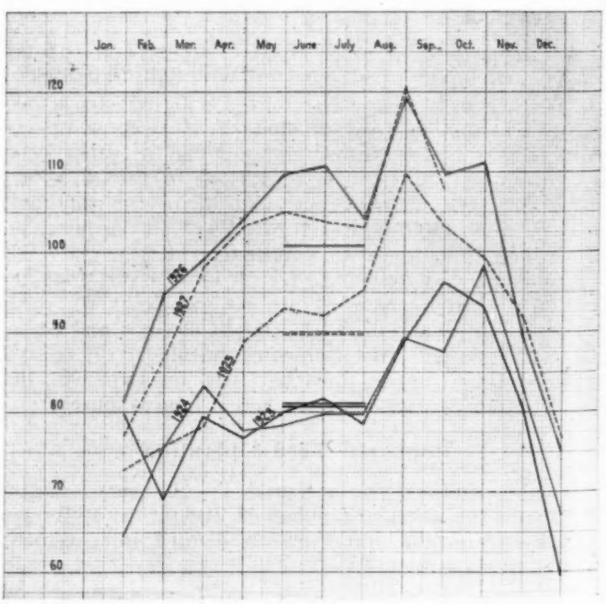


Fig. 2. Average Number of Freight Car Miles Per Switch Engine Mile

by the detailed statement of freight handling costs for the first nine months of the year, compared with 1926, shown in Table 3. In the first six months of the year, despite the decreasing business, the cost of freight handling continued to decrease. The usual tendency is in

the reverse direction and the feat of decreasing the average ton cost in the face of declining traffic is attributed to the daily cost reports. This is convincing proof of the theory that, in the final analysis, the agent is the determining factor in controlling freight handling cost and demonstrates further the value of daily cost statistics to the supervisors in charge.

Table No. 2—Operating Results at Selected Yards

	TACOMA						PARADISE					
	Cars Handled			Engine Shifts			Cars Handled			Engine Shifts		
	1927	1926	Decrease %	1927	1926	Decrease %	1927	1926	Decrease %	1927	1926	Decrease %
January	33,998	35,570	4.42	433	470	7.87	8,532	8,826	3.33	26	31	16.10
February	34,047	37,323	8.78	420	441	4.75	7,562	8,206	7.85	24	28	14.30
March	41,618	43,975	5.36	483	497	2.81	7,710	8,791	12.29	27	31	12.90
April	41,404	44,888	7.76	469	478	1.88	8,148	8,565	4.86	26	30	13.31
May	42,178	43,090	2.12	466	481	3.10	8,373	8,081	3.62*	27	31	13.00
June	41,574	43,227	3.82	449	479	6.20	6,710	7,858	14.60	27	28	3.60
July	36,661	39,802	7.89	417	463	10.00	6,171	8,423	26.74	27	28	2.00
August	43,841	41,043	6.82*	464	487	4.72	7,992	8,509	6.07	27	26	4.00*
September	42,421	42,307	.27*	474	470	.90*	9,035	6,326	42.83*	26	27	3.70

* Increase

Table No. 3—Freight Handling Statistics

	Tons Handled			Average Cost Per Ton		
	1927	1926	Decrease %	1927	1926	Decrease %
January	43,416	48,472	10.43	$0.833	$0.859	3.03
February	43,829	50,033	12.40	0.808	0.836	3.35
March	57,922	62,328	7.06	0.768	0.846	9.21
April	58,355	61,522	5.15	0.757	0.806	6.10
May	57,534	60,234	4.48	0.762	0.806	5.50
June	62,880	64,761	2.90	0.748	0.797	6.10
July	63,090	60.643	4.03*	0.742	0.860	13.70
August	69.583	64,575	7.75*	0.737	0.786	6.20
September	67,081	65,510	2.40*	0.738	0.747	1.20

* Increase

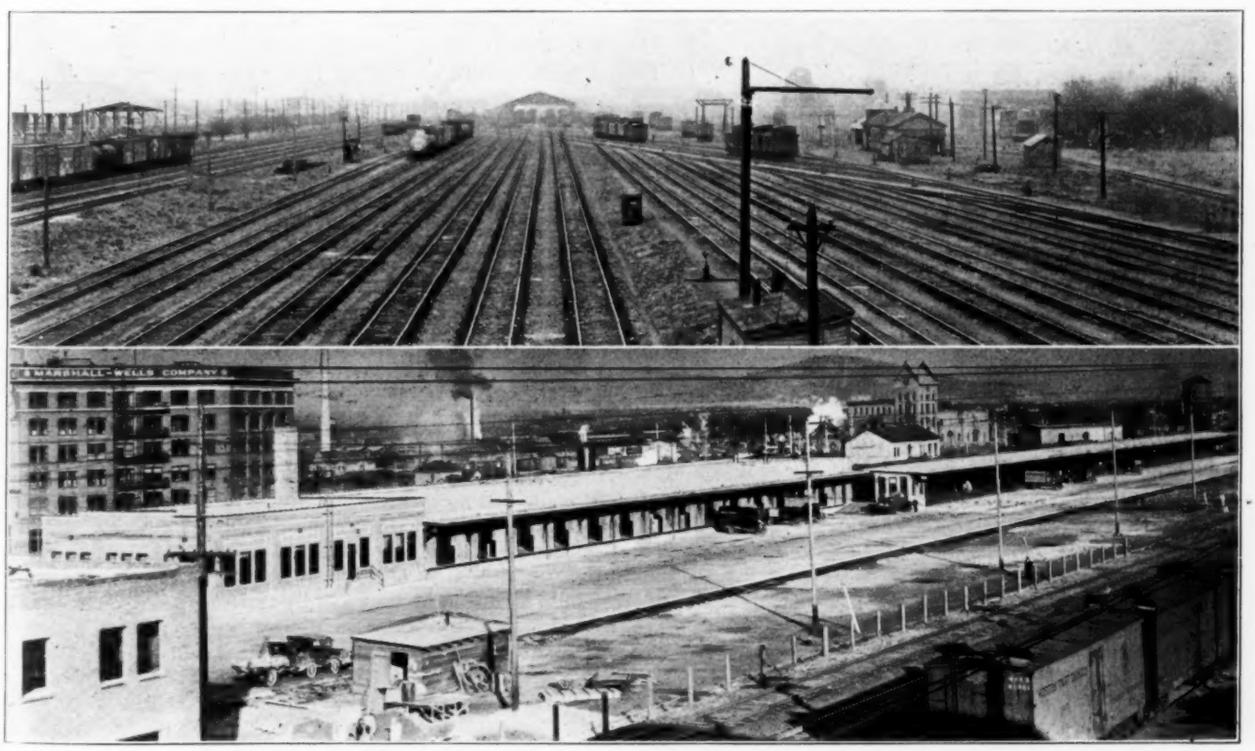
The average cost per ton of handling freight in the first six months of 1926 was 83.8 cents, while it was 76.6 cents in the same period for 1927, a reduction of 7.2 cents, or 8.6 per cent. It should be borne in mind, too, that these figures do not include the heavy fall and winter months, when the increased volume of traffic enables the freight to be handled at considerably less expense.

Some of the stations have made particularly good showings in this respect. At Bismarck, N. D., for example, where the amount of freight handled averages slightly less than 2,000 tons per month, the cost per ton was 66.5 cents in January, 1927. This has been gradually reduced until September, 1927, it was 49.7 cents. This represents an 18 per cent reduction as compared with September, 1926, when the cost was 60.6 cents. Cost affected their operations, and as a result of this study reductions have been effected at fully 90 per cent of the stations reporting, the savings at some of the larger stations being as follows: Portland, Ore., 11.70 per cent Spokane, Wash., 9.70 per cent; Minneapolis, Minn., 9.10 per cent; St. Paul, Minn., 8.60 per cent. The reduction in cost at Portland, Ore., is particularly creditable since it was made despite a decline in tonnage of 13.81 per cent.

Study Made of Industrial Conditions

Most of the freight transfer stations of the Northern Pacific were built when the country was new and the conditions unsettled. It was impossible to foretell, with complete accuracy, just what course the development of the Northwest would follow. Accordingly, transfer stations were built to meet the existing needs. The change in industrial conditions in the territory served, over a period of 20 years or more, has resulted in great changes in the jobbing and distribution centers. All of this has naturally had its effect on the character and destination of the merchandise transported by the railway. It has also affected the volume of freight handled at the various transfer stations.

Some three years ago, the Northern Pacific conducted a study of the general industrial situation, insofar as it



Above: The Yards of the N. P. at Auburn, Wash., Below: The Freight House at Seattle, Wash.

affected their operations, and as a result of this study many changes were made in the system of handling less than carload freight. Two large transfer stations were closed entirely, early in 1926, one at Auburn, Wash., and the other at Northtown, Minn., while facilities were added to or decreased at other stations in accordance with the data produced by the study. This has been responsible for a large saving. The freight transfer platform at Auburn was abandoned entirely because of the changes in distribution centers in that territory and the work formerly done there is now being handled at Seattle.

At Northtown, the situation was somewhat different,

DAILY YARD OPERATION COST REPORT
SELECTED ITEMS

YARD, DATE 19

MONTH:	THIS YEAR	LAST YEAR
YARDMASTER'S WAGES		
SWITCH TENDER'S WAGES		
ENGINE HERDER'S WAGES		
YARD CLERK'S WAGES		
ENGINEMEN'S WAGES		
SWITCHMEN'S WAGES		
TOTAL TODAY		
TOTAL TO DATE		
TOTAL CARS HANDLED TODAY		
TOTAL CARS HANDLED TO DATE		
COST PER CAR TODAY		
COST PER CAR TO DATE		
ENGINE SHIFTS TODAY		
ENGINE SHIFTS TO DATE		

YARDMASTER.

INSTRUCTIONS

Count of Cars: (Freight, Passenger and miscellaneous equipment including cabooses).
1 count for each car arriving at terminal yards in road trains or received in interchange from other lines.
1 count for each car departing from terminal yards in road trains, or delivered in interchange to other lines.
Note: Equipment passing through intermediate terminals and not handled by yard engines should not be counted.
Time of Yardmen and Enginemen: Only time devoted to freight and passenger switching to be included in computing expense. (Excludes work train and shop service switching).

Fig. 3. Form Used for Daily Yard Cost Statements.

although here too, industrial changes affected the situation to a certain extent. All less than carload freight moving westward through Minnesota Transfer, together with freight originating at Minneapolis and St. Paul, was formerly forwarded to Northtown for consolidation there before moving west. However, in recent years, the loaded movement has gradually increased eastbound and the westbound movement of empty cars has shown a corresponding increase, particularly empties suitable for grain loading. The study referred to indicated this and also established clearly the fact that it was no longer economical to consolidate shipments at Northtown and hold them to obtain maximum loading, when the majority of the cars moving westbound must necessarily be empties in any event to meet the demands of the traffic. Accordingly, Northtown transfer was closed. Less than carload shipments are now consolidated as much as possible at Minneapolis and St. Paul freight stations, but cars are permitted to move west with much less tonnage than was previously the case, since they must move west whether empty or loaded in any event. During the grain season and, in fact, during practically the entire year, all cars used for westbound merchandise are selected so as to be suitable for grain loading, and, upon arrival at their destinations, are loaded with grain for the eastward movement.

Hearings on Consolidation Bill

WASHINGTON, D. C.

AFTER devoting a week to hearings on the railway unification bill introduced by Senator Fess, the Senate committee on interstate commerce on January 14 suspended its consideration of the subject and left it uncertain as to when the hearings would be resumed, as on January 16 it began hearings on another subject, the proposed investigation of electric utility companies. The House committee on interstate and foreign commerce, however, expected to resume hearings on the similar Parker bill on January 19. The Senate committee, except for a few members, has indicated little interest in the bill and most of the testimony was given before only three or four members.

Alfred P. Thom, general counsel of the Association of Railway Executives, testified on January 11 and 12 outlining the reasons why the railroads believe legislation to amend the consolidation provisions of the transportation act should be enacted, along the lines of his testimony at the last session and that given by Commissioner Hall of the Interstate Commerce Commission. He also said that although Daniel Willard, president of the Baltimore & Ohio, had taken the position that additional consolidation legislation is not necessary, he was authorized to say that, in view of the opinion of other railway executives and of the Interstate Commerce Commission that changes are necessary, Mr. Willard would support the effort to obtain legislation.

Senator Wheeler asked how rates could be reduced by consolidation when the railroads are making every effort to increase the valuations on their property. Mr. Thom said he wished to call attention to the fact that rate reductions amounting to between three and four billion dollars have been made since 1921. Senator Wheeler said he had received information that some of the things going on in connection with the commission's valuation work "ought to be investigated."

Mr. Thom said there was a difference between the railway officers and the National Industrial Traffic League as to the extent to which the law should require the preservation of competition in connection with unifications, that the league desired the bill to state that there shall be no substantial lessening of competition, while the railways believe that the commission should be given discretion to decide whether the elimination of competition in some instances would be in the public interest.

Mr. Thom told the committee that if proper and adequate legislation is enacted they "might be surprised" at the rapidity with which proposals for railway unification would be brought forward by the railroads. This statement was in response to a remark by Senator Couzens that "if we are to wait for the good will of the railroads to get started" on a consolidation program, a delay of a few months in the handling of a proceeding before the commission for the purpose of protecting the rights of those concerned would not be serious. Mr. Thom said it was the position of the railroads that quicker action

could be obtained under permissive legislation than under a compulsory plan.

Senator Couzens said he saw possibilities of great danger of stock-jobbing if the bill provides that an application to the commission may be withdrawn, because the insiders might take advantage of the publicity attendant upon an application to sell the stock at high prices and then withdraw the application. Mr. Thom replied that it would take majority action to withdraw an application. S. T. Bledsoe, general counsel of the Atchison, Topeka & Santa Fe, said that while it is impossible to avoid all speculation in the market there would be a greater danger to the public interest if an application could not be withdrawn if speculation has run up the price of the stock of the road to be acquired to a point where the purchaser could not afford to pay it.

Mr. Thom told the committee he was now inclined to believe that the provisions of the bill should leave to the courts the question as to whether the entire law should fail if any part of it were declared to be unconstitutional, because it presents a complete scheme and some provisions would not be adequate or proper if certain others were struck out.

He also proposed that paragraph 2 of section 5 of the present law, authorizing acquisition of control short of consolidation, should be allowed to stand with a provision that the commission may require any applicant to comply with the provisions of the new law.

Senator Sackett, of Kentucky, said he would like to hear the testimony of some prominent railway operating executive as to the object to be gained by consolidations, because some question had arisen "as to whether consolidation is really worth while."

Wilbur La Roe, Jr., representing the Port of New York Authority, appeared on January 13 to urge specific provision in the bill for the inclusion or exclusion from a unification of terminal railway property and authorizing the commission to attach such conditions to its findings as will insure the common use of terminal property where the commission finds such common use to be in the public interest. He said such a provision was included in the Cummins bill but had not been included in the Fess bill.

S. W. Moore, general counsel of the Kansas City Southern, appeared on January 13 in support of a provision that taxation of railway property by states shall be without discrimination against an instrumentality of interstate commerce, saying that some states force railroads to bear a disproportionate share of taxation. Senator Fess said that such a proposal would raise a delicate question and Senator Couzens said he was sure there would be violent opposition to a bill carrying such a provision.

R. C. Fulbright, chairman of the legislative committee of the National Industrial Traffic League, told the committee on January 14 that the shippers and their traffic managers believe the present law to be unworkable and want the bill passed at this session of Congress, as a means of providing machinery by which the commission may approve voluntary unifications proposed by the railroads which it believes would be in the public interest. However, he insisted on changes in the bill, opposing any language which railroads could construe as calling for a general movement toward grouping all the railroads into a few large systems, and emphasized the view that the bill should direct the commission to preserve competition between carriers in whatever unifications it might in the future approve. He also declared that the problems of the short and weak railroads as a major reason for consolidation has been exaggerated, saying that Senator Cummins' compilation showing that 80,000 miles of line was not self-supporting included a large proportion of subsidiary companies that were really parts of stronger systems, as well as many industrial or logging roads which have served their purpose.

Mr. Fulbright said he voiced the conviction of hundreds of experienced traffic men when he stated that competition in service among railroads is a boon of incalculable value to the American people and that any lessening of such competition would be a loss to the people generally. There is a popular idea, he said, that when regulation steps in competition steps out, but laymen do not realize the many ways in which competition is of advantage to the shipper.

When Senator Fess asked if he did not think that competition would be preserved by the language in the bill, Mr. Fulbright said he did not. "We even think the Interstate Commerce Commission has gone rather far afield in some cases in permitting a reduction of competition in authorizations of acquisition of control under Section 5. The railroads say there is no requirement in Section 5 as to competition but I do not think Congress intended to authorize the commission to destroy competition under Section 5 and then try to preserve it under the section that directs it to prepare a consolidation plan. In some cases, however, it has denied applications on the ground that competition would be eliminated.

"We say there are many benefits that can come through consolidation and we think there should be a permissive system and that this bill is an admirable piece of machinery for that purpose, with some changes. But Section 202 seems to be a speech in favor of consolidation and ought not to be in the bill." In place of it Mr. Fulbright suggested the following language: "The unification of carriers or carrier property through any method or procedure provided for in this title may be authorized by the commission where it finds that such unification is in the public interest and will not substantially reduce existing carrier competition."

Section 202 of the bill mentions as considerations for the commission the preservation of "necessary short or weak lines," and the bringing about ultimately of "a number of strong, efficient and well-balanced systems," and would direct the commission to "prevent any undue lessening of existing carrier competition in service if such competition is deemed essential in the public interest."

At the conclusion of the statement Senator Couzens, who was presiding, said he did not see how the committee could hold another hearing on the bill for several weeks. Representatives of the short lines are yet to be heard and Mr. Thom said he had arranged for R. H. Aishton, president of the American Railway Association, to appear in response to Mr. Sackett's request.

* * *

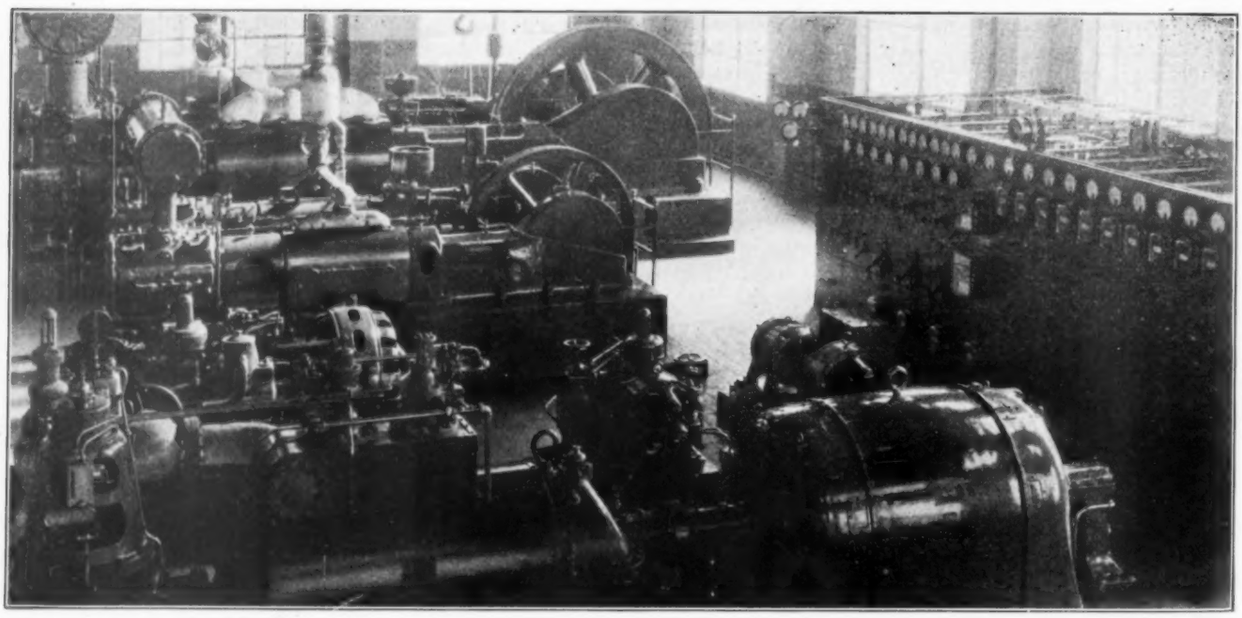
On the B. & A. at Worcester, Mass.

Northern Pacific Power Plant Effects Large Savings

Nine months' operation of new plant at Brainerd, Minn., indicates fuel, labor and other savings of $66,900 per annum

THE new power plant of the Northern Pacific recently constructed at Brainerd, Minn., has now been in operation a number of months and some definite conclusions may be drawn regarding the economies effected. A comparison of nine months' performance of the new plant with nine corresponding months' operation of the old plant shows a saving in labor of slightly over $5,000 and almost $45,000 saving in fuel. Low grade lignites from North Dakota and Montana may be burned effectively when necessary, as well as eastern screenings.

The power plant is used to generate steam, electrical energy and compressed air for use in the various buildings within the shop grounds. The shops at Brainerd consist of locomotive and car departments employing 950 men, being second in size of the three main shops on the system.



Interior View of Engine Room Showing 780 kv.-a. Westinghouse Turbo-Generator in the Foreground, 708- and 3989-cu. ft. per min. Worthington Air Compressors in the Background and Switchboard at the Right—Mixed Pressure Turbine Is Not Shown

The power plant building is of brick construction and consists of a boiler room 50 ft. 10 in. by 108 ft. 10 in. and an engine room 50 ft. 5 in. by 108 ft. 10 in. Steam is generated at 160 lb. pressure and 100 deg. F. superheat in four 591-hp. Badenhausen vertical water tube boilers. Each boiler is fired by a 10 ft. by 14 ft. Harrington traveling grate stoker equipped with forced draft. The boiler installation was designed so that the lower grades of fuel such as North Dakota and Montana lignites could be utilized efficiently if necessity demanded. The boilers are set high, 12 ft. from the floor to the center of the mud drums, and the furnaces are provided with double suspension ignition and combustion arches 7 ft. long and rear arches 3 ft long. Each stoker is driven through gearing by an individual Engberg vertical steam engine. Across the firing aisle in front of each boiler is a Sturtevant steam turbine driven blower, which has a capacity of 20,000 cu. ft. of air per min. at 4 in. static pressure. This air which is used for forced draft is conducted to the blast compartments under the stokers through concrete ducts. Branches from these air ducts lead to tuyere blocks placed in the ignition arches, which permits the use of air over the fire when necessary. With this arrangement of individual stoker drive and individual forced draft equipment, each boiler becomes a complete unit, and when a boiler is shut down for repairs or washing out, the stoker drive and forced draft equipment can be examined and kept in good operating condition.

Two reinforced concrete chimneys, each 9 ft. 6 in. in inside diameter by 185 ft. high above grates are provided, one for each pair of boilers.

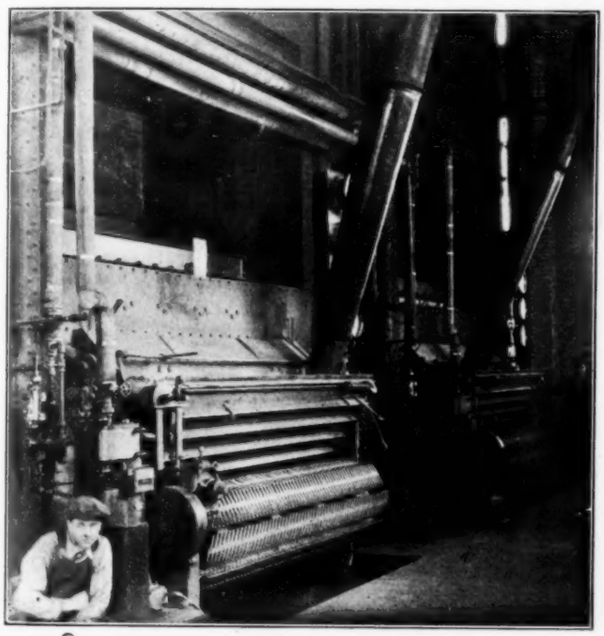
Coal is delivered in cars on a track at the level of the boiler room floor. When unloaded the coal passes into a concrete hopper and from there through a crusher, cross conveyor and longitudinal conveyor into overhead bunkers. The coal is delivered from the overhead bunkers to the stoker hoppers through the conventional magazines and coal spouts.

Each boiler is equipped with soot blowers, a recording flue gas pyrometer, carbon dioxide recording ma-

chine, suitable draft gages and steam flow meter, with the indicator in the boiler room and recorder and integrator in the engine room. Variations in load are nicely handled by automatic regulation of the stoker speed, forced draft turbine speed and position of the rear boiler dampers.

On the boiler-room floor are two motor-driven four-stage centrifugal boiler feed pumps, each having a capacity of 125 gal. per min. against a head of 435 ft. Adjacent to the boiler feed pumps is a 12-in. by 18-in. by 12-in. duplex steam pump which furnishes the water for washing out the boilers and which can also be used as a boiler feed pump. On a platform above the boiler feed pumps is a 3500 hp. open type feed water heater. The boilers and feed pumps are equipped with automatic feed water regulation.

The ashes are deposited at the rear of the grate into hoppers which are supported under the boiler room



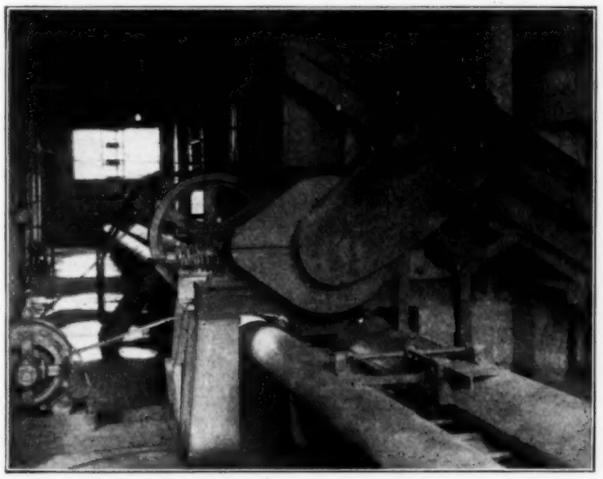
Interior View of the Boiler Room Showing Two of the Four 591-hp. Badenhausen Boilers

floor. The ash hoppers are equipped with sprinklers and air-operated gates, and discharge directly into gondola cars, which are run into and out of the basement on standard gage track.

The following equipment is installed in the engine-room:

1 - 937 kv.-a., 2,400-volt, 3-phase, 60-cycle mixed pressure turbo generator, speed 3,600 r.p.m.
1 - 780 kv.-a., 2,400-volt, 3-phase, 60-cycle non-condensing turbo generator, speed 3,600 r.p.m. transferred from old power plant.
1 - 187 kv.-a., 2,400-volt, 3-phase, 60-cycle non-condensing turbo generator, speed of turbine 7,200 r.p.m., generator 900 r.p.m.
1 - 35 kw. 22-volt, 3-phase, 60-cycle motor-driven exciter set, speed 1,750 r.p.m.
1 - 25 kw. 220-volt, 3-phase, 60-cycle turbine driven exciter set, turbine speed 7,290 r.p.m., generator 1,000 r.p.m.
1 - Jet condenser with 53 hp. turbine driven condenser pump. (Installed in basement under 750 kw. turbine.)
1 - 12-panel slate switchboard, black marine finish.
1 - 120-kv. static condenser in two units.
1 - 3989 cu. ft. per min. air compressor, duplex unaflow steam cylinders 22 in. by 30 in.; compound air cylinders 33 in. by 19 in. by 30 in., speed 135 r.p.m.
1 - 708 cu. ft. per min. air compressor, duplex unaflow steam cylinders 11 in. by 15 in.; compound air cylinders 15 in. by 9½ in. by 14 in.

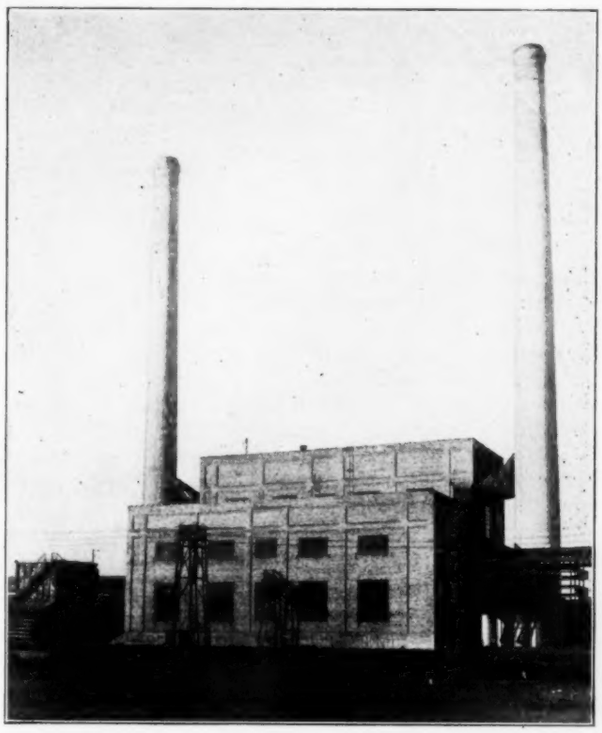
The equipment in the engine room is served by a



Interior View in Basement Showing Coal Handling Equipment

15-ton overhead hand-operated crane having a span of 47 ft.

In the basement of the engine room is a transformer room, containing three 50 kv.-a. transformers which supply energy for power house motors, three 16-in. by 9-in. by 12-in. duplex, steam driven fire pump and the gland water circulating pumps.



Exterior View of Power Plant From Engine Room Side, Showing Cooling Tower at the Left and Air Cooling System with Air Storage Reservoirs at the Right

The forced draft cooling tower is mounted adjacent to the engine room and has a capacity of 1500 gal. per min.

All of the important equipment in connection with

this installation was tested in May and June to ascertain how the actual performance compared with the guarantees of the various manufacturers. All of the equipment tested met the guarantees with but slight exception.

Boiler Test Results

Nine boiler tests were made with five different kinds of coal, operating at different boiler ratings. The results of a test made with Montana semi-lignite and eastern screenings are as follows.

Kind of coal	Semi-lignite	Eastern
Duration of test, hrs.	10	10
Average Pressures:		
Atmospheric pressure by barometer in.	28.62	28.45
Steam pressure in boiler by gage, lb.	157	162
Blast in main duct, in.	1.92	2.86
Blast in compartment, 1 in.	0.51	1.13
Blast in compartment, 2 in.	0.45	0.75
Blast in compartment, 3 in.	0.40	0.25
Blast in compartment, 4 in.	0.33	0.02
Blast in compartment, 5 in.	0.17	0.00
Draft over fire, in.	0.006	0.011
Draft in last passage, in.	0.51	0.61
Average Temperatures, deg. F.:		
Of external air	69	79
Of air entering fan	77	88
Of feedwater entering boiler	218	221
Of escaping gases	533	531
Of steam in main steam header	442	439
Average superheat in main steam header	73	67
Fuel:		
Loss on air drying, per cent	17.24	4.31
Moisture, per cent	7.55	1.30
Volatile combustible, per cent	35.70	36.15
Fixed carbon, per cent	47.85	58.15
Ash, per cent	8.90	4.40
Sulphur—separate determination, per cent	0.48	0.63
B. t. u. per lb. of coal as fired	9,040	13,401
Total amount of fuel consumed, lb.	45,067	29,406
Water:		
Factor of evaporation	1,084	1.079
Equiv. water evaporated into steam from and at 212 deg. F., lb.	300,418	306,401
Total heat derived from fuel (per lb. of fuel as fired), B. t. u.	6,469	10,112
Combined efficiency of furnace, boiler, grate and superheater, per cent	71.56	75.45
Equiv. water evaporated per lb. of fuel as fired, from and at 212 deg. F., lb.	6.666	10.42
Rates of Evaporation and Combustion		
Equiv. water evaporated per sq. ft. heating surface per hr., lb.	5.08	5.18
Fuel consumed per sq. ft. grate per hr., lb.	32.19	21.00
Thickness of fire, in.	6.25	3.31
Lb. of fuel per hp.-hr. developed	5.18	3.31
Hp. developed	870.8	888.1
Per cent of builder's rating developed	147.3	150.3
Carbon dioxide by Orsat, per cent	14.9	12.9
Oxygen by Orsat, per cent	4.1	6.1
Carbon monoxide by Orsat, per cent	0.1	0.1

Similar tests with three other kinds of fuel produced efficiencies within the limits indicated by the above tests.

With a Montana semi-lignite having a heat value of 9,040 B.t.u. per lb. as fired, the combined efficiency of the boiler, furnace, grate and superheater was 71.56 per cent, while with eastern screenings having a heat value as fired of 13,401 B.t.u. per lb., the combined efficiency was 75.45 per cent.

The average electrical load during the shop working hours is 585 kw. and the 750 kw. mixed pressure turbo generator is able to handle the load at all times, thus leaving the 625 kw. non-condensing unit for a spare machine. The 150 kw. unit carries the load Sundays and nights.

Before deciding upon the type of turbo generator to be installed, a careful study was made of the steam distribution and the amount of exhaust steam available during various months. During January, February and December, there is an average of 17,000 lb. of low pressure steam available per hour for heating or use in a mixed pressure turbine. The heating load requires all of this and some high pressure steam during cold winter months. During June, July and August, there is an average of 15,900 lb. of exhaust steam available per hour for use in a mixed pressure turbine, as there is no heating load. The saving to be effected by utilizing this exhaust steam in a mixed pressure turbine was more than sufficient to cover the additional investment for this type of machine.

The old power plant at Brainerd is located adjacent to the planing mill and two of the boilers were always equipped for burning shavings. Under the present arrangement, the shavings from the mill are burned in two of these old boilers and the steam generated at low pressure for a dry kiln. Excess steam from the kiln is discharged into a main which connects with the exhaust main in the new power plant. The steam generated by the burning of shavings averages 5,400 lb. per hour, eight hours per day and is available for use in the mixed pressure turbine or for heating.

The following statement shows the comparative costs of operation of the old power plant and the new power plant for nine corresponding months of operation:

	New Plant Dec. 1926 to Aug. 1927 inclusive	Old Plant Dec. 1924 to Aug. 1925 inclusive	Saving new plant over old plant	Per cent
Fuel used—tons	13,299	17,776	4,447	25.2
Cost of operation				
Labor	$17,542.65	$22,628.22	$5,085.57	22.4
Fuel	35,678.31	80,658.92	44,980.61	55.7
Supplies	1,247.31	1,252.29	4.98	0.4
Water	592.80	696.78	103.98	14.9
Total	$55,061.07	$105,236.21	$50,175.14	47.7

The new power plant has effected a saving in direct operating costs of $50,175.14 or 47.7 per cent in nine months time, which is equivalent to $66,900 per annum or slightly more than was estimated. The largest saving is in the cost of fuel and this was effected by designing the plant to burn the smaller sizes of cheaper fuel more economically than the old plant could burn the more expensive grades of fuel.

This power plant was designed by Northern Pacific engineers and installed under their direct supervision. The general contractor for the power plant building was Charles Skooglun, St. Paul, Minn. The contract for the boilers, stokers, boiler settings, forced draft equipment, feedwater control and automatic combustion control was awarded to the Fuel Economy Engineering Company, St. Paul. The contract for all of the electrical equipment, condenser and cooling tower was awarded to the Westinghouse Electric & Manufacturing Co. The contract for the unaflow air compressors was awarded to the Worthington Pump & Machinery Corp., and the boiler feed pumps were supplied by the Allis Chalmers Company, Milwaukee, Wis.

Hoch-Smith Inquiry Delays Routine Work of I. C. C.

THE extent to which the forces of the Interstate Commerce commission are being absorbed by the work incident to the rate structure investigation required by the Hoch-Smith resolution, while it has on its formal docket over 2800 formal cases, or approximately two years' work, was described by Commissioner J. J. Esch in testimony before a subcommittee of the House appropriations committee in connection with the appropriation for the commission's work for the fiscal year 1929. Commissioners Esch, Lewis and McManamy and Secretary McGinty appeared before the subcommittee on January 3 and their testimony was made public January 17 when the bill including the commission appropriations was reported to the House.

The committee recommended for the commission total

appropriations amounting to $7,654,745, as compared with $7,981,314 for 1928, including $2,564,500, the amount of the Budget bureau recommendation for the general work of the commission, whereas the commission had asked for $81,100 more in order that it might employ 25 additional attorney-examiners, at an average salary of $3,000.

"One reason why our output of formal cases has not been more than it has recently," Mr. Esch said, "is on account of the fact that we have had no less than 16 of our old, experienced examiners who are devoting practically all their time to the consideration and to the hearing of these parts of Docket 17,000, under the Hoch-Smith resolution. Eight of them are devoting part of their time to it, and we have three experienced examiners who are devoting their entire time to the Hawes resolution." The latter resolution directed the commission to make an index digest of every paragraph and section of the acts administered by the commission and of the decisions of the commission and of the courts construing the acts.

"These examiners are mostly old and experienced men," he added, "who, if they devoted their time to routine cases, would have a greater output than an equal number of less experienced men. That means a total of 27 of our old, experienced examiners, which is practically one-fourth of our total examiner force. We had in 1925 about 70 examiners; today we have 111 examiners besides 2 who are absent on leave without pay and 3 who are devoting all their time to the Hawes resolution, making a total of 116 examiners."

Mr. Esch also called attention to the fact that neither the Hawes resolution nor the Hoch-Smith resolution carried any appropriation for their administration and that $15,462 had been expended up to the first of the year on account of the former and $138,093 on account of the Hoch-Smith resolution, not including any expense for the time of the commissioners or the secretary and their respective offices in the handling and consideration of the subject. Moreover the expense will continue for some time in the future.

"We have 2,808 cases on our formal docket pending," he said. "With the present force, and working at the rate at which we have been working for the past year and a half, it would take the commission 23 months to dispose of the 2,808 cases. But in the meantime there would have been filed 2,500 new cases."

Under the resolution, adopted February, 1925, the commission has undertaken an investigation of the entire rate structure of the United States, "with the purpose of seeing whether or not it may be possible to reduce rates on agricultural products, including livestock, consistent with the maintenance of an adequate system of transportation," Mr. Esch said. In connection with it the commission has started investigations as to certain basic commodities, such as iron and steel, petroleum and its products, grain and grain products, cotton, cottonseed and products and vegetable oils, furniture, and several others, 12 in all. Asked by members of the committee as to what has been accomplished so far and as to when the farmers may expect reduced rates, Mr. Esch said that the investigations are of such wide extent that none of them have been concluded but that as soon as they are concluded "the commission will undertake to determine the rate structure, so far as it is applicable to those particular commodities or classes of commodities." Asked if the conditions may not so change as to make the results worthless by the time the investigation is concluded Mr. Esch said that that depends on the interpretation given to the reference to the "existing depression in agriculture" placed in the resolution in 1925.

Short Lines Ask Relief from Recapture

WASHINGTON, D. C.

OFFICERS and a large number of members of the American Short Line Railroad Association appeared before the House Committee on interstate and foreign commerce on January 17 and 18 in support of the bill introduced by Representative Newton, H.R.8549, similar to the Pittman bill in the Senate, to exempt certain classes of short or weak railroads from the operation of the recapture clause. Their argument was that many of such lines ordinarily having a deficit or being just able to get along occasionally have a year or two of especially heavy traffic which gives them recapturable earnings and that it is unfair for the government to collect half of the excess instead of allowing it to be applied to the payment of past indebtedness.

Bird M. Robinson, president of the association, said he would also urge an amendment to the bill providing that recapture for all roads shall be based on a five-year average instead of on the results of a single year. He said the short lines had received no benefits from the recapture fund and that most of the $7,140,000 already collected by the commission was paid by short lines. Ben B. Cain, vice-president and general counsel, said that there are many roads dependent largely on one or two principal commodities and that therefore their earnings fluctuate more than longer roads. The purpose of the recapture plan originally, he said, was to aid the weak roads but it has failed of that purpose and he cited the examples of several lines which have had a most precarious experience but in one or two years have had recapturable earnings because of temporary conditions.

He said the bill proposes to exempt three classes of roads, those with not over 250 miles of line and earning not in excess of $10,000 a mile; those of 100 miles and less and earning not over $15,000 a mile; and, to the extent to be determined by the Interstate Commerce Commission, roads of a limited service life of not over 200 miles and earning not over $10,000 a mile. Some members of the committee asked why the exemption should not be based on net instead of gross earnings, but Mr. Cain said that some arbitrary classification had to be adopted.

Testimony on behalf of Pacific coast roads was given by C. M. Oddie, vice-president of the short line association, and W. L. White, general manager of the Yosemite Valley. Mr. White said his road has never paid a dividend and has an accumulated deficit of $1,366,000 but it had earnings in 1925 and 1926 nearly double its average, because of some power plant construction work which gave it additional traffic. R. E. Wilson, formerly president of the Jonesboro, Lake City & Eastern, in Arkansas, said that the road had never paid except in 1922 and 1923 and that when he sold it to the St. Louis-San Francisco in 1925 he had to pay an amount to the commission under recapture and put the other half in escrow.

Similar testimony, with illustrations from their individual situations was given by a number of additional short line officers on January 18, including George Janvier, general counsel, Louisiana Southern; T. L. Wilson, general counsel, Lake Erie, Franklin & Clarion; W. E. Brown, president, Cowlitz, Chehalis & Cascade; J. E. DuPont, Jr., vice-president, Pearl River; A. T. Young, vice-president and general manager, San Luis Central; W. M. Cannon, president, Louisiana & Northwest; O. W. Tuckwood, general manager, Trona; J. A. Demeke, traffic manager, Gideon & North Island; W. L. Sykes, president, Grasse River; and G. W. Peabody, general agent, Gulf & Sabine River.

Communications and Books

Expenditures for Safety Devices on the C. & E. I.

CHICAGO.

TO THE EDITOR:

In your issue of September 10, there was an editorial entitled, "Automatic Highway Crossing Signals as Money Makers," which led to an investigation on the part of the Chicago & Eastern Illinois to determine how much money had been spent in the last few years to promote safety of operation on the railway and also for the public traveling in other vehicles.

For the period from January 1, 1921, to September 30, 1927, the C. & E. I. has spent directly through its own organization or has contributed to the sums spent by other organizations, such as the Chicago & Western Indiana, a total sum of $1,553,483.

The above sum has been classified as follows:

(a) Separation of grades on C. & E. I.	$83,767
(b) Separation of grades on other lines, C. & E. I. proportion	258,980
(c) Automatic train control	225,208
(d) Highway crossing signs and gates	42,720
(e) Crossing watchmen's salaries	1,011,492
(f) Applying rail in road crossings in lieu of more temporary material	15,082

The above figures represent the amount of cash required to finance these installations and improvements, although part of the expenditures are necessarily charged to operating expenses. Manifestly, as a matter of common knowledge, many of these expenditures are the result of greater use of highways by private individuals, corporations, and municipalities, largely based upon the automobile and auto truck development.

T. C. POWELL,
President, Chicago & Eastern Illinois.

Railroads Partly to Blame for Not Securing College Graduates

NEW YORK.

TO THE EDITOR:

In the December 17 issue of the *Railway Age* you published an editorial on the subject of technically trained men in the railway field in which you enumerated several criticisms that have been directed against the railroads in this matter. The comment which reads "Equally strong is the criticism to the effect that they (the railroads) do not scientifically plan to assimilate these men (college graduates) in their organization and that they do not especially favor them," is certainly true in the writer's experience.

About seven years ago a railroad which had a highly developed course for special apprentices took on ten college graduates who represented ten of the best technical schools in this country. Upon the completion of their three-year course, instead of being assigned to the work to which their training entitled them, they were given jobs which certainly did not require a four-year technical education and three years of special training in railroad work; the jobs could have been done by shopmen of unusual ability. These ten graduates were kept on this work for about a year, after which they were assigned to more suitable tasks. They were satisfied, but after about a year's time, owing to a change in policy, they were given the opportunity of either resuming the work to which they were assigned during the first year after graduation or accepting positions as enginehouse gang foremen on the 3:00 p.m. to 11:00 p.m. trick. Those who accepted the first alternative did so with the intention of leaving the railroad, while those who accepted the gang foreman's job did so hoping that this training would quickly lead to a better position or, at least, to better working hours. Within three years every one of these ten graduate special apprentices left the service of the railroad and entered other fields.

A similar instance occurred on a large road in the west. Two college graduates, whom the writer knew personally, completed a three-year special apprentice course and the railroad, being unable to find places for them, used them as machinists for a period of about a year. Finally, these two boys were transferred to the test department. After two years service in this department with no assurance of even being advanced to gang foremanships, the boys became discouraged and left the railroad.

These two cases surely substantiate your criticism that the roads have not planned to assimilate the graduate special apprentice. Furthermore, these young men are not shouting from the housetops about the wonderful opportunities offered to the technically trained man in the railroad field. Here are twelve graduate special apprentices who are doing everything they can to discourage any of their friends from entering the railway field as a life's work. A GRADUATE SPECIAL APPRENTICE.

Give the Draft Gear a Chance for Improvement

CHICAGO.

TO THE EDITOR:

In your issue of November 5, in an editorial entitled "Are Railroads Treating the Cause", you have touched on a very important feature of railroad freight car maintenance. So long as the present types of draft gear are in service, there should be a definite plan of inspection and repair to these gears if their capacity is to be maintained, and especially to prevent free slack, which is the most destructive element to the cars.

Railroads generally have no facilities for determining the cost of repairs due to inefficient or defective draft gears. This item of expense is generally lumped under the head of freight car repairs and is not segregated where it can be brought to the attention of the proper authorities. In a few instances, railroads have attempted to sub-divide their freight car repairs under a few principal items such as roofs, doors, ends, trucks, etc., but rarely if ever, has there been an effort to charge all of the freight car repairs that may be attributable to the draft gear failures.

It is reasonable to assume that broken striking castings, yokes, lugs, bent end sills and draft sills, etc., are directly caused by some failure of the draft gear to function properly and protect them. To the credit of the draft gear manufacturers it can be said that they have earnestly attempted to provide the utmost protection, but friction means wear, wear means slack, and slack results in damage. Without making repairs to compensate for wear, damage is bound to occur.

Considering the limited area in which the draft gear may be placed, the present gears do remarkably well for the work imposed upon them, but with the enormous increase in the capacity of locomotives which has resulted in extremely heavy tonnage trains, together with the increased shocks due to accelerated hump yard switching, the time seems opportune to suggest a change in the design of the car which will permit increasing the size of the draft gear to meet modern conditions.

If draft sill spacing were increased from 12⅞ in. to 18 in., it would enable draft gear engineers to exercise their ingenuity and to redesign their various types of cushioning mechanism so that much of this trouble could be overcome. Friction elements contained in these larger gears could be of such size and strength that wear would be reduced to a minimum and by rearrangements of springs or other adjusting means, much of the free slack created could be taken care of and the life of the gears prolonged materially.

No change in the spacing of center sills has been made for many years, although other features of the car have been improved and strengthened. If the spacing were increased, it would not necessarily destroy interchangeability with present types of gears because emergency fillers or adapters could be utilized to take care of the transition period. C. R. L.

New Books

Compendium of R. A. O. A. Arbitration and Appeal Cases, Vol. II. Edited by E. R. Woodson. 671 pages. 6 in. by 9 in., bound in cloth. Published by the Railway Accounting Officers Association, Washington, D. C. Price $3.

This contains the statement of facts, the arguments of the carriers involved in the dispute, and the findings of the arbitration or appeal committee for each case handled by the R. A. O. A. Arbitration Committees.

The book is intended primarily for the convenience of those who are familiar with the R. A. O. A. arbitration rules which constitute a means of effecting accounting adjustments among the carriers without, ordinarily affecting railroad patrons. Those rules, obviously, have no application in conflict with any federal or state law, or any ruling order of any regulatory body exercising lawful authority.

The compendium is used principally as a reference book to settle analogous cases, somewhat as a lawyer uses court decisions. The cases in Volume II deal with overcharge claims, agency relief claims, and other phases of freight accounting. In the foreword the editor has given an explanation of R. A. O. A. arbitration methods.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The American Reinforcement in the World War, by Thomas G. Frothingham. Railroad effort and achievement over here and in France among the many activities described and related to the general effort in this book. 364 p. Pub. by Doubleday Page & Co., Garden City, L. I., $3.00.

Future in Engineering, 1977, by Samuel Rea. Prophecy at the 50th anniversary of the Engineers' Club of Philadelphia. 18 p. Pub. by Pennsylvania System, Philadelphia, Penna. Apply.

Great Inland Waterway Projects in the United States. Twenty-five articles on various aspects of Mississippi Valley flood control, the St. Lawrence waterway, Boulder Dam and Muscle Shoals issued as the January, 1928 number of the Annals of the American Academy of Political and Social Science. 250 p. Pub. by the American Academy of Political and Social Science, Philadelphia, Penna., $2.

Progress of Grade Crossing Elimination in the Large Cities in the United States—List of References, compiled by Municipal Reference Division, Seattle Public Library. Costs, scope of projects, and other information compiled from available data. 13 p. Issued by Seattle Public Library, Seattle, Washington. Apply.

Periodical Articles

Getting in Step with Beauty, by Robert W. DeForest. The president of the Metropolitan Museum of Art mentions some of the things industries are doing to improve the appearances of the products, the cash value having been proved. American Review of Reviews, January 1928, p. 63-68.

Labor's Contribution to the Scientific Organization of Industry, by Otto S. Beyer, Jr. The union-management plan of various American railways as described to the International Management Congress at Rome. American Federationist, January, 1928, p. 32-35.

The Railroads: Their Situation Shows Effects of Heavier Regulation, by H. T. Newcomb. A consideration of present-day tendencies. Annalist, January 13, 1928, p. 56-57, 136.

Road and Rail Transport—Comparison, by Sir John Eaglesome. Performance and possibilities of each especially in opening up areas in colonies. Roadless traction is also discussed and "Rutway Tracks," i. e. "a track suitable for the ordinary 2 ft. 6 in. gage railway rolling stock, fitted with flangeless wheels" (p. 95-96), are described. Journal of the Institute of Transport, December 1927, p. 89-96.

Looking Backward

Fifty Years Ago

The Illinois Central has fitted two suburban cars with oil lamps to take the place of candles, also in one through service coach three pairs of lamps with porcelain shades have been installed. Each evening the two lamp lighted cars on the suburban trains are crowded to excess, the passengers apparently preferring to stand where the oil lamps are provided rather than to find seats in the candle-lit cars.—*Railway Age,* January 24, 1878.

A new Chicago and Omaha line, looking to the control of a portion of the Pacific through business, has been formed over the Chicago & Alton, the St. Louis, Kansas City & Western (now a part of the Wabash) and the Kansas City, St. Joseph & Council Bluffs (now a part of the Chicago, Burlington & Quincy). The prospects for this line are quite superior to those of the route formed several months ago by the two railroads first named and the St. Joseph & Denver City (now the St. Joseph & Grand Island), diverting traffic from the Union Pacific at Kearney Junction, Neb.—*Chicago Railway Review,* January 22, 1878.

Twenty-Five Years Ago

W. J. Jackson, heretofore assistant general superintendent of the Chicago & Eastern Illinois, has been appointed general superintendent of that company. His headquarters will be located at Chicago.—*Railway and Engineering Review,* January 24, 1903.

In a test of lignite briquettes on the Minneapolis, St. Paul & Sault Ste. Marie a locomotive covered 20 miles on a ton of fuel, which is considered greater than the mileage made with soft coal. When the furnace was once supplied with the briquettes it was said that the fire required little attention and burned with practically no clinkers.—*Railway and Engineering Review,* January 24, 1903.

Governor LaFollette of Wisconsin in his inaugural message before the legislature a week ago recommended the creation of a state board of assessment for the purpose of determining the value of railroad property and applying to railroad companies and other public service corporations a higher rate of taxation than is in force on that sort of property. La Follette adds that such action to compel the railroads to pay greater taxes will fail unless it is supplement with legislation protecting the public against increased transportation charges, which would be virtually an order decreasing rates.—*Railway Age,* January 25, 1903.

Ten Years Ago

H. M. Adams, vice-president and traffic manager of the Missouri Pacific has been appointed director of inland transportation of the war department to supervise all government traffic, under Major General G. W. Goethals, acting quarter master general.—*Railway Age,* January 18, 1918.

Both the House and Senate Committee on interstate commerce have devoted about 10 days to hearings on the administration bill prescribing the conditions governing the government's control of the railroads during the war. Railroad witnesses maintain that the compensation should be based on the year 1917 or the average of 1917 and 1916, as a fair example of earning capacity, rather than upon an average of 1915, 1916 and 1917 which would be reduced by the inclusion of the unfavorable results obtained in the year 1915.—*Railway Age,* January 18, 1918.

Odds and Ends of Railroading

"U. S. to Help Air Lines, Shipping and Highways"—*Newspaper headline.*

And doubtless raise the taxes on the railroads to provide the necessary funds. The railroad now enjoys the questionable distinction of being the only form of transportation not favored by having government officers especially assigned to advance its interests.

A sleeping car, lodged in the mountains, 200 miles from the nearest village, and there used as a dwelling by Moslem priests, is a discovery recently reported in a press dispatch from Vladikavkaz, Caucasus. Tourists reached the place after five days of horseback riding. The car is said to have been captured by a gang of mountain plunderers when a train was derailed in 1918, and dragged up the mountain by a team of 75 oxen.

The celebration of 40 years of service with the Frisco by Frank H. Hamilton, vice-president, secretary and treasurer, brings out the fact that he is one of the few railway men in this country with a European education. Mr. Hamilton was graduated from the University of France at Paris in 1883. Another executive with a European education is J. E. Taussig, president of the Wabash, who attended private schools at London, England, Darmstadt, Germany, and Brussels, Belgium. L. K. Sillcox, formerly general superintendent of motive power on the Chicago, Milwaukee & St. Paul, also had a European education, having been graduated from the polytechnic school of the University of Brussels.

What is claimed to be the first train operation by remote radio control was conducted recently on the Union Pacific at Denver, Colo. A locomotive, specially equipped for receiving radio impulses, drawing two passenger cars, was operated for several hundred yards by M. J. Francil. During the demonstration, Francil and his control box were installed on a flat car, pushed by an ordinary locomotive. The radio man was never closer than 20 ft. to the train being operated and in some places, was as far as 75 ft. away. As he pressed the buttons on his box, the crewless locomotive came to life, the bell rang, steam hissed from the exhausts, and the wheels began to turn. The train eventually attained a speed of 15 miles an hour, slowed down and speeded up again, all under radio control.

The influence of Charles Dickens, as well as of Shakespeare, has made itself felt in naming railway stations on this continent. For example, there are three stations named after the English author, one each on the Chicago, Milwaukee & St. Paul, the Canadian Pacific and the Chicago, Burlington & Quincy, in Iowa, Manitoba and Nebraska respectively. Many of the namers of stations must have been familiar with Dickens' "Oliver Twist," for there are 14 Olivers and a Twist, the latter in Texas on the Ft. Worth & Denver City. The villain of the book is represented by Fagin, Tenn., on the Louisville & Nashville, and the co-villain, the odious Bill Sykes, has no less than five stations named for him. There is a Copperfield, Nev., on the Western Pacific and a Dombey, Ky., on the L. & N. The famous "Pickwick Papers" are also represented. Someone on the New Orleans Great Northern and the St. Louis-San Francisco named stations after Mr. Pickwick, in Mississippi and Oklahoma, while there are many stations called Weller, after the inimitable "Samivel" Weller, who, it will be remembered, was warned by Mr. Pickwick to "bevare of vidders" when he contemplated matrimony.

Railroad Conductor Has Unique Avocation

Railroad men are noted for their hobbies. Many go in for fishing, golf, radio and what not. But playing the role of scout for a professional baseball club is one of the most unusual that this department has come across.

For some time past the Newark Baseball Club of the International League has not had a regular scout in its employ. The "Bears," however, possess a genuine ivory hunter who is always on the go. This individual answers to the name of John D. Bundy. The officers of the Newark Bears have never seen him, nor do they know where they can locate him from one day to another. All they know is that he is a railroad conductor, a baseball bug and a good judge of diamond talent. He is employed on a southern railroad which takes him to many college towns and minor league cities, where he sees many promising ball players in action. Whenever he learns of promising ball players, he makes it a point to see them play at the first opportunity.

His afternoons between runs are almost always spent at a ball game in the hope of digging up a "find." He is credited with starting Roy Carlisle and his brother Cleo, last year with the Boston Red Sox, on their professional baseball careers. He discovered the pair at Oglethorpe University. He also recommended Vic Sorrell, sensational Toronto pitcher to the Canadian club, which is also in the International League and last year he sent Roy Gill, a promising pitcher, to the Newark Bears. His most recent discovery is Reese Herron, an outfielder, who has been signed by the Bears and whom Bundy believes to be the best college prospect in the south. Herron hails from Anderson, N. C., and played at Clemont College. He will be given a chance at the Bear's training camp at St. Augustine, Fla., this spring.

Locating the Cause of Rough Handling

At a recent division "prevent claims" meeting a switchman committee member made the following remarks which, this department feels, may be equally true in a few other places than on this one division. We quote verbatim from the record:

"It seems as though nobody seems to admit there is any rough handling. We all know that somebody is rough handling cars or there would not be any damage. I notice one thing in the yard that should be corrected. Switch crews, instead of taking a light engine and shoving cars in a track to make room for more, will take a cut of cars and couple to those in the track and shove them. This results in unnecessary rough handling of cars and causes considerable rough handling. Oftentimes I have seen an engineer bring a train of a hundred cars into the yard and handle it so easy that it would not spill a glass of water, but when that same engineer got on switch engine he would tear 7 or 8 cars to pieces. I notice considerable rough handling with stock, and when handling stock I always make it a point to tell the engineer we have ahold of some stock and to handle it carefully. I also caution the switch crew to use this same practice. I noticed one case where an engine had ahold of some cars, one car contained stock. These were moved but a short distance until three or four of them were down. If someone had just told the engineer he was handling stock this would have probably been avoided.

"It seems as though working in the yard we all get more or less in the habit of being careless. The cars are bigger and the power we have is bigger and we don't have much time to handle trains. It takes much longer to couple up a hundred cars than it does 50. Sometimes when coupling up long trains one man will be near the rear of the train, and with smoky and cloudy conditions it is hard to repeat the signals and we oftimes misjudge his signal as to the distance we have to go before the coupling can be made. A lot of damage is done by loads shifting as when handling cars with straight air, the engineer doesn't always know how many he has ahold of and sometimes stops rather abruptly and I believe it should be generally understood to use more care in stopping. I know switchmen give bad signals, and I think the men will agree with me, that have worked with me, that they don't intend to give bad signals but are just in a hurry. When a fellow is in a hurry it seems as though more things go wrong and we don't have time enough to make up these long trains and be very careful."

NEWS *of the* WEEK

Gilt Edge Express on N. Y., N. H. & H., at De[illegible]

THE RAILWAY CLUB OF PITTSBURGH will hold its next meeting on January 26 at the Fort Pitt Hotel, Pittsburgh, Pa., when a paper will be read on "Train Operation by Signal Indication," by W. B. Rudd, engineer, the Union Switch & Signal Company, Swissvale, Pa. Moving pictures will be given in connection with this subject.

THE AMERICAN ASSOCIATION OF RAILROAD ADVERTISING AGENTS held its annual meeting in Chicago on January 17. All of the officers were reelected for the ensuing year with two exceptions: H. P. Riccadonna (Chicago Great Western) heretofore vice-president was elected treasurer and J. B. Ruden (Southern) was elected vice-president in place of Mr. Riccadonna.

SEELY DUNN has resigned as assistant director of the Bureau of Statistics of the Interstate Commerce Commission, effective January 15, to take a position with J. P. Morgan & Co. Mr. Dunn had been in railway service for many years beginning in 1884, with the Louisville & Nashville, of which he later became a division superintendent. He was later connected with the construction of railroads in the southwest and in Central America and was for a time division engineer of the United Fruit Company. During the war he was with the embarkation of troops, after which he became connected with the service of supply in connection with the Bureau of Statistics.

Signal Section March Meeting

The Signal Section of the American Railway Association, C. H. Tillett, chairman; H. S. Balliet, secretary, has issued circular No. 92, announcing the regular meeting of the Section, to be held at Stevens Hotel, Chicago, on Monday and Tuesday, March 5 and 6.

In addition to the regular committee reports, of which notice will be issued, the program contains also the following addresses: Economics of automatic block signaling on Seaboard Air Line by O. P. Teague; Operation of trains by signals, by B. J. Schwendt, N. Y. C.; also on the same subject another paper by E. B. DeMeritt, Central of Georgia; also one by G. W. Trout, Pere Marquette; Savings by the use of spring switches, by F. W. Pfleging, U. P.; Experimental installation of ground electrodes, by E. Beck.

The afternoon of the first day will be devoted to the reports of the committees on (a) Economics of railway signaling, (b) Signaling practice and (c) Highway crossing protection.

C.N.R. to Pay C.V. Pensions

The pensioners of the Central Vermont are to be taken care of during the reorganization period by the Canadian National, according to an announcement by the receivers of the company, George A. Gaston and Judge J. W. Redmond. It had been found that the receivers could not legally continue to make the pension payments and the positions of those on the pension list were in doubt until the management of the Canadian National came forward and agreed to furnish the money necessary to carry on the payments as heretofore for a year, at the end of which time it is expected the reorganization of the company will have been completed.

Wage Statistics for November

Class I railways reported to the Interstate Commerce Commission for October a total of 1,783,542 employees as of the middle of the month and a total compensation to employees for the same month of $225,656,707. Compared with the returns for the corresponding month last year, the number of employees reported for October, 1927, shows a decrease of 4.42 per cent and the total compensation shows a decrease of 2.82 per cent. The decrease in the number of employees is distributed among all classes below executives, officials and staff assistants, the largest decrease being in the equipment and stores group.

Confirmation of I. C. C. Appointments Delayed

Up to January 18 the Senate committee on interstate commerce had taken no action on the question of recommending for confirmation by the Senate the President's appointments of J. J. Esch for a new term on the Interstate Commerce Commission or Claude R. Porter to succeed Commissioner Hall. This leaves a vacancy on the commission, as the appointment of Mr. Porter enabled Mr. Hall to resign, as he has been trying to do for some time, and Commissioner Esch is serving under a recess appointment. Before the recess appointment was made the commission had given him an appointment as special counsel temporarily.

Central Vermont's Line Now Nearly Restored

The Central Vermont announces that a local mixed train will be put in service on January 23, from White River Junction, northward, 71 miles to Waterbury, which is ten miles beyond Montpelier Junction. From Waterbury, northward to Bolton, eight miles, there is considerable work yet to be done. In the 11 weeks since the flood, the Central Vermont has had to do important restoration work on 220 miles of road, including 28 miles of branches. Eighteen lost or badly damaged bridges had to be dealt with, and earth filling to the amount of 500,000 cu. yd. has been used. About one-fifth of this filling was brought to the line of the road by motor trucks.

Railway Bills in Congress

Senator Trammell, of Florida, on January 12 introduced a bill, S. 2508, providing that freight, express and passenger rates shall not be increased without authority of the Interstate Commerce Commission and that shippers shall be given at least 60 days' notice of hearings on applications for an increase of rates.

Representative Shallenberger, of Nebraska, on January 12 introduced three railroad bills, H.R.9189, to repeal section 15a of the interstate commerce act and to restore rates as they were prior to the increase of August 26, 1920; H.R.9190, to amend section 26 of the commerce act, and H.R.9193, to prohibit the collection of a surcharge on fares in parlor or sleeping cars. H. R. 9190 provides for penalties upon the directors, officers or employees of a railroad for failure to comply with an order of the Interstate Commerce Commission requiring the installation of automatic train-control in case of an accident attributable to failure to comply with such order.

Senator Brookhart, of Iowa, has introduced S. 2489, to amend the fourth section of the commerce act to provide

that if carriers charge higher rates for a shorter distance than for a longer distance except when authorized by the commission or by law, they shall be liable for reparation to the shippers for the amounts collected in excess of the charge for the longer haul or the aggregate of intermediates, with interest at 6 per cent.

Appropriations Recommended for I. C. C.

Appropriations to the amount of $7,654,745 for the work of the Interstate Commerce Commission for the fiscal year ending June 30, 1929, are recommended by the House appropriations committee. This is a decrease as compared with the $7,981,314 appropriated for the fiscal year 1928, because of the reduced amount required for valuation work; but it represents an increase in the general appropriation for the commission.

The committee recommends appropriations in accordance with the estimates submitted in the Budget, with but two exceptions. For the Bureau of Locomotive Inspection the committee recommends that the sum of $493,856 be appropriated for the year 1929. This equals the appropriations for the current year, but exceeds the Budget estimate by $2,408. For printing and binding the sum of $265,000 is recommended to be appropriated, which sum is $10,000 in excess of that estimated in the Budget. The report says that the work of the commission is increasing and the volumes of decisions are essential to the work of the commission and to many interests.

For the general expenses of the commission $2,564,500 is recommended. This sum is $103,900 more than the amount available for similar purposes for the current fiscal year and is made necessary by the increasing number of formal cases being filed before the commission.

For the Bureau of Valuation the committee recommends the sum of $2,200,000 for 1929. To bring the primary valuations of steam railroads to date, the committee has again adopted a program in making appropriations, which will enable the commission to complete this work within the next three years.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 183 Steam Railways, Including 15 Switching and Terminal Companies.

FOR THE MONTH OF NOVEMBER, 1927 AND 1926

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Average number of miles operated	238,685.73	238,204.65	59,205.39	59,521.52	5,609.99	5,605.46	39,792.42	39,417.75	134,077.93	133,659.92
Revenues:										
Freight	$385,760,020	$433,487,948	$159,657,439	$189,511,765	$18,182,886	$23,971,484	$50,866,286	$57,081,854	$157,053,409	$162,922,845
Passenger	a 70,884,574	b 77,379,809	36,884,385	39,398,699	1,394,748	1,612,418	9,046,276	10,683,227	23,559,165	25,685,465
Mail	7,923,001	7,950,950	3,006,638	3,052,391	192,054	198,253	1,168,575	1,178,973	3,555,734	3,521,333
Express	12,384,626	13,864,350	5,689,868	6,585,332	291,801	311,266	1,441,079	1,773,214	4,961,878	5,194,538
All other transportation	16,085,925	17,500,720	9,122,181	9,984,460	192,604	192,634	886,238	1,079,498	5,884,902	6,244,128
Incidental	9,926,915	11,449,639	5,352,023	5,864,467	326,687	491,230	1,030,556	1,348,117	3,217,649	3,745,825
Joint facility—Cr.	1,202,158	1,087,665	468,129	435,365	9,718	14,346	134,316	150,498	589,995	487,456
Joint facility—Dr.	347,419	465,266	130,996	135,485	1,973	1,786	32,541	37,344	181,909	290,651
Ry. operat'g revenues	503,819,800	562,255,815	220,049,667	254,696,994	20,588,525	26,789,845	64,540,785	73,258,037	198,640,823	207,510,939
Expenses:										
Maintenance of way and structures	70,472,841	72,906,705	30,022,993	30,858,829	3,342,447	3,642,589	9,667,056	11,176,803	27,440,345	27,228,484
Mainten'ce of equipm't	100,428,698	108,969,880	47,229,361	54,018,478	4,514,013	4,816,573	13,525,322	14,241,759	35,160,002	35,893,070
Traffic	10,013,383	9,832,817	3,749,833	3,613,104	279,312	256,854	1,769,647	1,776,554	4,214,591	4,186,305
Transportation	177,458,699	193,606,486	83,547,277	92,706,952	5,767,151	7,010,248	22,967,118	25,148,289	65,177,153	68,740,997
Miscellaneous operat'ns	4,364,821	4,478,393	2,133,801	2,183,518	75,158	82,523	444,764	497,263	1,711,098	1,715,089
General	15,868,677	15,472,632	7,179,298	6,890,567	593,916	521,980	2,092,676	2,039,942	6,002,787	6,020,143
Transportation for investment—Cr.	1,731,279	1,680,614	299,683	375,863	41,946	62,629	144.396	242,957	1,245,254	999,165
Ry. operat'g expenses	376,875,840	403,586,299	173,562,880	189,895,585	14,530,051	16,268,138	50,322,187	54,637,653	138,460,722	142,784,923
Net revenue from railway operations	126,943,960	158,669,516	46,486,787	64,801,409	6,058,474	10,521,707	14,218,598	18,620,384	60,180,101	64,726,016
Railway tax accruals	31,237,547	35,136,149	12,192,315	13,800,592	1,609,465	2,074,152	4,129,218	4,867,240	13,306,549	14,394,165
Uncollectible ry. rev's	118,369	156,903	59,095	85,622	2,754	2,825	15,181	22,562	41,339	45,894
Ry. operating income	95,588,044	123,376,464	34,235,377	50,915,195	4,446,255	8,444,730	10,074,199	13,730,582	46,832,213	50,285,957
Equip't rents—Dr. bal.	7,067,143	6,549,055	3,588,144	3,617,314	d 471,811	d 452,818	451,145	97,733	3,499,665	3,286,826
Joint facility rent—Dr. balance	2,096,602	1,886,608	1,032,075	845,395	92,030	126,195	70,066	131,468	902,431	783,550
Net railway operating income	86,424,299	114,940,801	29,615,158	46,452,486	4,826,036	8,771,353	9,552,988	13,501,381	42,430,117	46,215,581
Ratio of expenses to revenue (per cent)	74.80	71.78	78.87	74.56	70.57	60.73	77.97	74.58	69.70	68.81

FOR ELEVEN MONTHS ENDED WITH NOVEMBER, 1927 AND 1926

Average number of miles operated	238,637.03	237,976.12	59,411.91	59,570.31	5,607.26	5,604.07	39,707.56	39,324.44	133,910.30	133,477.30
Revenues:										
Freight	4,313,763,790	4,435,652,732	1,872,497,880	1,953,256,819	228,522,973	233,389,381	580,801,799	609,389,157	1,631,941,138	1,639,617,375
Passenger	c 894,376,570	e 954,228,130	461,334,095	480.261,587	18,380,540	20,082,126	116,164,474	139,328,120	298,497,461	314.556,297
Mail	86,013,368	86,429,377	32,724,237	32,904,857	2,218,324	2.238,664	12,766,656	12.971,914	38,304,151	38,313,942
Express	129,142,061	134,634,992	61,146,332	64,004,851	2,974,704	2,962,446	16,330,872	17,778,683	48,690,153	49.889,012
All other transportation	188,921,926	193,946,380	106,592,721	110,459,269	2,285,071	2,530,742	10,291,851	11,723,441	69,752,283	69.232,928
Incidental	118,903,573	124,930,477	59,552,062	62,110,252	4,138,425	4,883,557	12 564,677	14,694,336	42,648,409	43.242,332
Joint facility—Cr.	12,810,282	12,282,339	5,129,509	4,907,943	164,113	154,567	1.738.071	1,566,710	5,778,589	5.653,119
Joint facility—Dr.	4,504,783	4,502,686	1,497,111	1,484,520	26,086	25,003	373,748	379,013	2,607,838	2,614,150
Ry. operat'g revenues	5,739,426,787	5,937,601,741	2,597,479,725	2,706,421,058	258,658,064	266,216,480	750,284,652	807,073,348	2,133,004,346	2,157,890,855
Expenses:										
Maintenance of way and structures	808,547,749	807,530,790	337,850,539	342,810,242	36,130,525	36,559,053	110,266,391	118,199,833	324,300,294	309,961.662
Mainten'ce of equipm't	1,129,677,794	1,184,867,430	535,338,534	574,278,194	53,708,863	53,702,358	149,785,637	155,861,304	390,844,760	401.025,574
Traffic	110,377,089	104,866,980	41,053,901	38,504,409	2,910,262	2,744,138	19,129,411	18.715,335	47,283,515	44.903.098
Transportation	1,988,440,114	2,016,067,224	942,429,863	954,111,572	67,524,276	69,214,145	262,348,455	277,054,655	716,137,520	715,686.852
Miscellaneous operat'ns	51,591,232	51,903,704	23,922,760	24,036,456	908,750	988,384	5.558,526	6,133,775	21,201,196	20,745,089
General	176,282,653	169,544,884	80,326,317	77,340,689	6.190,159	5,618,497	23,030,262	22,200,449	66,735,915	64,385,249
Transportation for investment—Cr.	15,595,766	15,073,598	2,748,046	2,086,861	542,004	581,485	1,355,703	2,712,221	10,950,013	9,693.031
Ry. operat'g expenses	4,249,320,865	4,319,707,414	1,958,173,868	2,008,994,701	166,830;831	168,245,090	568,762,979	595,453,130	1,555,553,187	1,547,014,493
Net revenue from railway operations	1,490,105,922	1,617,894,327	639,305,857	697,426,357	91,827,233	97,971,390	181,521,673	211,620,218	577,451,159	610.876.362
Railway tax accruals	356,146,960	364,972,610	146,536,725	150,766,644	19,705,862	19,351,119	46,969,744	49,928,373	142,934,629	144.926.474
Uncollectible ry. rev's	1,348,248	1,476,206	530,454	717,235	45,946	34,986	217,776	187,276	554,072	536.709
Ry. operating income	1,132,610,714	1,251,445,511	492,238,678	545,942,478	72,075,425	78,585,285	134,334,153	161,504,569	433,962,458	465,413,179
Equip't rents—Dr. bal.	81,141,587	77,059,376	41,374,343	40,690,202	d 5,513,767	d 6,112,388	5,428,520	9,788,593	39,852,491	32,692,969
Joint facility rent—Dr. balance	22,942,508	21,513,446	11,120,847	9,839,581	1,084,714	1,096,711	1,100,185	1,273,678	9,636,762	9,303,476
Net railway operating income	1,028,526,619	1,152,872,689	439,743,488	495,412,695	76,504,478	83,600,962	127,805,448	150,442,298	384,473,205	423,416,734
Ratio of expenses to revenue (per cent)	74.04	72.75	75.39	74.23	64.50	63.20	75.81	73.78	72.93	71.69

a Includes $2,958,722 sleeping and parlor car surcharge. b Includes $3,176,419 sleeping and parlor car surcharge. c Includes $37,005,421 sleeping and parlor car surcharge. d Deficit or other reverse items. e Includes $38,215,097 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Safety Education for February

The program of the Committee on Education, of the Safety Section, A. R. A., for the month of February, emphasizes that part of the accident record which includes cases due to unsafe practices in shops, etc. A large colored bulletin has been issued illustrating some of the things which the careful man will avoid doing.

Noting the fact that 20 per cent of all accidents under this head occur in the use of hand tools, the circular notes that many bruises and broken bones result from using ill-fitting wrenches. Makeshift scaffolds appear frequently in the records; a workman needs a safe scaffold for a job of five minutes, the same as he does for one of two hours. Tools falling from places where they have been left carelessly, as on the running board of a locomotive, cause shop accidents. It is suggested that members of safety committees, specialize on this particular item for 30 days. The goggle problem is yet unsolved in many shops, and attention is called to the successful results in shops where a man neglecting to wear goggles, when necessary, incurs liability of being dismissed.

Movies of Iron Horse Fair

The Baltimore & Ohio has started a motion picture train on a tour of its system to show pictures of the Centenary Exhibition and Pageant to employees of the company and to others who were not able to attend the Iron Horse Fair at Baltimore. The train has visited Green Spring, W. Va., and Somerset, Pa.

The theatre consists of two cars—a coach was converted into a motion picture theater and a baggage car into an electric generating and heating plant. The seating capacity of the theater car is 80 people and the car is equipped with motion picture projector and screen, Orthophonic Victrola and amplifiers. In the baggage cars are installed a heating system and an electric generator supplying the electricity for lighting purposes and operating the projector and music.

The four-reel set of motion pictures shows the Pageant in the sequence in which it was produced at Baltimore from the appearance of the Centenary Band until the finale. The music has been selected from the available phonographic records as nearly as possible to that played by the Centenary Band or sung by the Baltimore & Ohio Glee Club during the passing of the Pageant every day of the Centenary Exhibition.

Florist of the Frisco

Don B. Fellows, chief clerk in the storekeeper's office of the St. Louis-San Francisco at Springfield, Mo., has been appointed florist, to direct an extensive program for the beautification of station grounds and properties. A plan of furnishing section foreman, agents and others on the Frisco with flower bulbs and seeds to be used in planting flower gardens on the railroad's property was established on a small scale in 1927, with Mr. Fellows in charge, in addition to his regular duties. The idea became so popular that Mr. Fellows has now been given full charge of station beautification. More than 23,000 plants and bulbs of cannas, dahlia, gladioli and elephant ears were planted by employees at approximately 400 locations in 1927.

The first stations around which flowers will be planted in 1928 will be those in Columbus, Miss., Aliceville, Ala., Demopolis and Linden, all of which are on the extension from Aberdeen, Miss., south to Kimbrough, Ala.

Automatic Train Control, Poughkeepsie to Chicago

The New York Central has completed the installation of automatic train control on its main line substantially the whole of the way from New York to Chicago, except the 73 miles at the New York end, which includes the electric division; and with the Boston & Albany, equipped its whole length, now has this protection through from both New York and Boston to Chicago, with this 73-mile exception. The detailed mileage is shown in Table A.

The number of locomotives as shown in the table, will soon be increased by 200, and there are something like 200 locomotives of other companies running over New York Central lines on various divisions and equipped with automatic train control.

The Albany bridge (Rensselaer to Albany) is traversed by trains with speed under control, and is not equipped; and the same is true of a section in the city of Syracuse. Englewood, 6½ miles short of the LaSalle Street terminal, Chicago, is the junction of the New York Central and the Rock Island. Kensington, on the Michigan Central, is the junction with the Illinois Central, whence the Michigan Central trains run to the terminus over Illinois Central tracks.

Of this total of 4,697 miles of track, a length of 1,981 miles has been equipped by voluntary action of the company, in addition to the mileage called for by the orders of the Interstate Commerce Commission.

Table A—Automatic Train Control on New York Central Lines

		Engines	Miles Road	Miles Track	Inductors
New York Central (East)	Poughkeepsie to Rensselaer	614	358	1,328	1,492
	Albany to Syracuse				
	Syracuse to Buffalo				
New York Central (West)	Buffalo to Cleveland	445	540	1,739	1,690
	Cleveland to Toledo				
	Toledo to Elkhart				
	Elkhart to Englewood				
Boston & Albany	Boston to Rensselaer	232	199	486	596
C., C., C. & St. Louis	Mt. Jackson, Ind., to Lenox, Ill. (Indianapolis to Granite City)	90	235	377	444
Michigan Central	Detroit to Niles	245	268	535	512
	Niles to Kensington				
Pittsburgh & Lake Erie	Pittsburgh to Youngstown	116	64	232	314
		1,742	1,664	4,697	5,048

The New Commissioner

Claude R. Porter, who has been nominated by President Coolidge as a member of the Interstate Commerce Commission to succeed Henry C. Hall, resigned, for the balance of Mr. Hall's term, which expires at the end of 1928, is a lawyer, of Des Moines, Ia. He was born at Moulton, Ia., in 1872 and attended high school, Parsons College and the St. Louis Law School. He was admitted to the bar in 1893 and began the practice of law at Centerville, Ia., where he practiced for several years as a member of the firm of Porter & Greenleaf. He served with the army during the Spanish-American

C. R. Porter

war. From 1896 to 1904 he was a member of the Iowa legislature and in 1908, 1909, 1911 and 1920 he was Democratic candidate for the United States Senate. From 1914 to 1918 Mr. Porter was United States attorney for the southern district of Iowa and from 1918 to July, 1919, was assistant attorney general of the United States in charge of criminal business. He resigned in July, 1919, to become chief counsel of the Federal Trade Commission, which position he held until October 1, 1920, after which he was special counsel for the commission until 1924. He then resigned and returned to the practice of law at Des Moines.

A Summer School of Railroading At Harvard

The Graduate School of Business Administration of Harvard University, Professor W. B. Donham, Dean, announces a special session for business executives to be conducted at Morgan Hall, beginning July 9, and continuing until August 18; and one of the seven courses is on railway transportation, to be in charge of Professor W. J. Cunningham of Harvard and Professor Winthrop M. Daniels of Yale. This course is intended for

junior officers and operating and departmental heads of railroad companies and also the course is intended for teachers of business.

The studies will cover both economics and administration; economics to include the development of railroads, the legal background of regulation and a survey of existing legislation; also rate-making. Under administration the different departments will be taken up and also organization as a whole; and attention will be given to accounting requirements. Special emphasis will be placed on the problems of the transportation department, including design and operation of terminals and methods of train operation.

Railroad men who are properly qualified may be interested also in some of the other courses as, for instance, accounting and financial policies, advertising and public utility management.

Applications, with a remittance of $25, should be sent to Miss M. B. Fox, secretary, Soldiers' Field, Boston, Mass. The total tuition, including the $25, will be $200.

Room and board may be had at the University at from $115 to $180. This special session has been planned as a result of the satisfactory experimental school conducted last year, and one of the expected advantages is the intimate contact and discussion with business men from many industries; and, for this reason, pupils are advised to avail themselves of the opportunity of living at the school.

Admission will ordinarily be limited to executives in responsible positions and to teachers, a principal desideratum being to secure men of experience, competent to engage in general discussions. The right is reserved to withdraw any course if, by June 1, twenty men have not been enrolled in that course.

Mississippi Supreme Court Reversed

The Supreme Court of the United States, in a case brought to it on certiorari, has ruled on an injury to an extra brakeman, who testified that, in trying to board a freight train moving at from eight to ten miles an hour, as he caught the grab iron he stepped on a big piece of coal, his foot turned and he "went down and the engine gave an unusual jerk." This threw him loose from the train, and he fell to the ground, breaking a kneecap and otherwise injuring him. The court rules that the injury could not be laid to the negligence of the engineer, who was on the right side of the train, while the brakeman was on the left. There was testimony to the effect that after the slack runs out the engineer cannot give any jerk or lurch to the train even by suddenly putting on steam; and that at the time of the injury there was in fact no unusual jerk or lurch of the train. The jury should, it was held, have been instructed to find for the defendant railroad.

Judgment for plaintiff, which was affirmed without opinion by the Mississippi Supreme Court, was reversed. Gulf, Mobile & Northern v. Wells. Decided January 3, 1928. Opinion by Mr. Justice Sanford.

Traffic

B. H. Harris, office assistant to the chief traffic officer of the Chicago, Milwaukee, St. Paul, & Pacific with headquarters at Chicago has resigned to become a member of the Western Classification Committee, Chicago.

Western tourist travel for the year 1927 was heavy, according to a statement issued by the Southern Pacific, which shows that ticket validations for all lines for the westbound tourist season, May 15 to October 31, totaled 138,922 for the Pacific Coast, an increase of slightly over 6 per cent over the year 1926. This company anticipates equally good tourist traffic to California during 1928.

Part 5 of the Interstate Commerce Commission's rate structure investigation, pertaining to rates on furniture, has been assigned for initial hearing at Chicago, to begin on April 16, together with certain formal complaint cases. It has been tentatively proposed that further hearings be held at Seattle, Los Angeles, Kansas City, Atlanta and Boston, New York or Washington.

Senator Capper, of Kansas, has introduced in the Senate a resolution, S. J. Res. 67, directing the Interstate Commerce Commission to make an immediate investigation of the export grain rates of the United States and to adjust them to a basis that "will permit grain and grain products produced in the United States to move as freely as grain produced in the Dominion of Canada to points of export, so far as such rates may be lawfully applied."

The through express trains, the "Montrealer" and the "Washingtonian," between Washington, D. C., and Montreal, Que., over the Pennsylvania, the New Haven, the Boston & Maine, the Central Vermont and the Canadian National, which are still unable to use their regular route through Vermont because of the breaks still existing in the line of the Central Vermont, north of White River Junction, are now run between Bellows Falls, Vt., and the international boundary over the Rutland.

The Canadian National and the Canadian Pacific have each announced new express trains between Montreal and Ottawa to be put in service on January 23. The distance, 112 miles by the C. P. R. and 116 miles by the C. N., will be made in each direction in three hours. The present train service between the two cities affords insufficient accommodation for passengers who wish to transact business at destination and return home without using up a whole day; and the new trains remedy this inconvenience. The Canadian National leaves Montreal at 9:45 a. m. and the Canadian Pacific at 1:05 p. m.; and the return trains, eastbound, start in the early evening on both roads.

Freight Rates and Corn Prices

No definite relationship exists between freight rates and fluctuations in prices paid to farmers for corn, according to a study made by the Bureau of Railway Economics. On the contrary, it was shown that at points having the same freight rate to a primary market, the prices paid to farmers for corn not only differed considerably, but showed no uniformity even in their differences. Out of 260 freight rates from various points to principal primary markets, only 21 changes occurred during the four years covered by the study. Of these changes, all of which were in the nature of minor adjustments, 16 were decreases and only 5 were increases.

Freight Traffic in November

The freight traffic handled by the Class I railroads in November amounted to 37,227,800,000 net ton-miles, according to compilations by the Bureau of Railway Economics, a decrease of 6,132,337,000, or 14.1 per cent under November, 1926. In the Eastern district there was a de-

The Reading's New Port Richmond Tidewater Grain Terminal
Built at a cost of $4,000,000 on Delaware near Philadelphia and opened on January 14—Capacity 2½ million bushels.

crease of 20.8 per cent, in the Southern 13.8 per cent, and in the Western 4 per cent.

For 11 months freight traffic amounted to 440,083,329,000 net ton-miles, a decrease of 1.9 per cent below the corresponding period in 1926, but 5.2 per cent above 1925.

Railroads in the Eastern district for the 11 months reported a decrease of 3.3 per cent, while the Southern district reported a decrease of 3.5 per cent. The Western district reported an increase of 0.8 per cent.

The average daily movement per freight car for the first 11 months in 1927 amounted to 30.7 miles, as compared with 30.5 for the same period in 1926. The average in November, 1927, was 30.2 miles, compared with 32.1 miles in November, 1926. The average load per car in November was 26.8 tons, a decrease of 1.7 tons under that of November, 1926. For the 11 months the average load was 27.2 tons, compared with 27.3 tons for the first 11 months in 1926.

South Jersey Roads Reduce Rates To Meet Competition

The railroads connecting Philadelphia with South Jersey seashore points—the Pennsylvania (with its subsidiary, the West Jersey & Seashore) and the Atlantic City (a Reading subsidiary) have announced sweeping reduction in round-trip rates effective January 22. The reductions are the railroad's answer to competition from unregulated motor coach lines operating interstate over the new Philadelphia bridge.

Railroad service between Philadelphia and the Jersey coast has been excellent, trains carrying commuters being operated at scheduled speeds in excess of 60 m.p.h. The motor coaches cannot approach this speed but have made their bid for business by cutting rates under the standard railroad fares. They do not make commutation rates. The result has been that the railroads have been left with the non-remunerative commutation business while the motor coaches have taken a large share of the paying traffic. The railroads state that unless the new rates being substantially increaseds busines they will be forced to curtail service.

The reductions made by the railroads are on round trip rates. Other fares remain unchanged. The reductions run between 40 and 45 per cent of former rates. The new rates between Philadelphia and Atlantic City (59.7 miles via the Pennsylvania steam line, 65.7 miles via the P. R. R. electric line and 55.5 via the Reading) are as follows:

Round trip, 17 day limit, $3.60, unchanged.
Round trip, 10 day limit, $3, a new form of ticket.
Round trip, 2 day limit, $2.25, a new form of ticket.
Round trip, 1 day excursion, $1.75 from Broad Street Station, P. R. R.
Note: Rates via the P. R. R. electric line are about 25 cents less than service via the steam line.

In addition to these reductions to seashore points the roads will offer low rate one day round trip tickets between Philadelphia and points approximately 40 miles away.

The new rates are but slightly greater than prevailing motor coach charges.

Equipment and Supplies

Locomotives

THE WESTERN LUMBER COMPANY has ordered one Prairie type locomotive from the Baldwin Locomotive Works.

THE SLOSS-SHEFFIELD STEEL & IRON COMPANY has ordered one Consolidation type locomotive from the Baldwin Locomotive Works.

THE TORONTO, HAMILTON & BUFFALO has ordered two 2-8-4 type locomotives from the American Locomotive Company, Montreal Works. Inquiry for two locomotives was reported in the *Railway Age* of November 26.

THE UNION PACIFIC is inquiring for 23 Union Pacific (4-12-2) type 9000-class locomotives and 15, 18,000-gal. capacity locomotive tenders.

Freight Cars

THE CHICAGO GREAT WESTERN is inquiring for 55 freight car underframes.

WILSON & Co. are inquiring for 300 refrigerator cars of 40 tons' capacity.

THE ST. LOUIS SOUTHWESTERN is inquiring for six freight car underframes.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 150 ballast cars.

THE NORTHERN PACIFIC has ordered 50 caboose car underframes from the Siems Stembel Company.

THE UNION PACIFIC has issued an inquiry for 500 fifty ton steel underframe flat cars, which, according to a report in the *Railway Age* of January 14, it contemplated entering the market for.

THE MANILA RAILROAD has ordered 50 flat cars from the Gregg Company, and is inquiring for 50 box cars. Both lots of cars are of 30 tons' capacity.

THE REPUBLIC IRON & STEEL COMPANY is inquiring for 50 gondola car bodies of 70 tons' capacity.

THE STANDARD OIL COMPANY OF NEW JERSEY is inquiring for 12 all steel fifty-ton box cars.

THE PACIFIC FRUIT EXPRESS is now inquiring for 2,000 refrigerator cars.

Passenger Cars

THE ST. LOUIS-SAN FRANCISCO is inquiring for 5 rail motor gas-electric cars.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 6 baggage cars and 3 combination passenger and baggage cars.

THE PENNSYLVANIA is now inquiring for 680 passenger cars previously reported as contemplated in the *Railway Age* of December 24.

THE UNION PACIFIC has authorized the purchase of six 275-hp. gas-electric passenger rail motor coaches and eight 70-ft. mail and baggage trailers.

THE SOUTHERN has ordered one combination baggage and mail car from the Bethlehem Steel Company. This is in addition to the 25 cars reported in the *Railway Age* of December 30.

THE CANADIAN NATIONAL order for 2 rail motor cars placed with the J. G. Brill Company was for service on the Central Vermont and should have been omitted from the cars listed for service in Canada in the *Railway Age* of January 7, page 106.

THE TEXAS & PACIFIC has ordered two business cars from the American Car & Foundry Company.

Iron and Steel

THE ST. LOUIS SOUTHWESTERN has ordered 14,000 tons of rails from the Illinois Steel Company, the Inland Steel Company and the Bethlehem Steel Co.

THE PERE MARQUETTE has ordered 12,000 tons of rails from the Bethlehem Steel Company, the Illinois Steel Company and the Inland Steel Company.

Signaling

THE READING has contracted with the Union Switch & Signal Company for the installation of automatic block signals on its two-track and three-track line between Nicetown (Philadelphia) Pa., and Gladwyn; 34 color light signals, 69 switch instruments, etc. The contract also includes extensive alterations in the interlocking at West Falls.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company a mechanical interlocking, seven working levers, for St. Petersburg, Fla.

THE LIMA LOCOMOTIVE WORKS has ordered from the Union Switch & Signal Company, 20 locomotive equipments for the automatic train stop system, to be used on the Boston & Maine.

Signals and A. T. C. on Northern Alabama

The Southern Railway, operating the Northern Alabama, has contracted with the General Railway Signal Company for the installation of automatic (visual) block signals on the Northern Alabama, between Haleyville, Ala., and Jasper, 40 miles, together with intermittent inductive auto-manual train control. The roadside signals will be color-light, type D. A power line will be installed by the railroad company. Eleven locomotive equipments are included in the order, and 84 inductors.

Supply Trade

John A. MacLean, Jr., has been appointed representative of the MacLean-Fogg Lock Nut Company, Chicago.

Alfred R. Edwards, San Francisco, Cal., has been appointed Pacific representative of the railway sales division of the **Lowe Brothers Company,** Dayton, Ohio.

Chester H. Jones has been appointed in charge of the New York office of the **Fansteel Products Company, Inc.,** North Chicago, Ill. Mr. Jones will be in charge of the chemical, metallurgical and radio Balkite sales.

The Transportation Service Company, Chicago, of which **W. J. Walsh** has become president, as announced in the *Railway Age* of December 24, has changed its name to the **Aseco Corporation,** Chicago.

The National Lumber & Creosoting Co., Texarkana, Ark., has acquired 60 acres of land at Utah Junction. Colo., upon which it plans the construction of a treating plant.

George W. McIntyre, formerly representative of the **Niles-Bement-Pond Company** has been appointed representative of **Reed-Prentice Corporation,** with headquarters at 75 West Street, New York City.

The **Blaw-Knox Company,** Pittsburgh, Pa., is reported to have acquired the **Andrews-Bradshaw Company.** Products of the merged companies will be made by Blaw-Knox but the Bradshaw Corporation identity will be continued.

The Hendrick Manufacturing Company, Carbondale, Pa., manufacturers of Mitco interlocked steel grating, stair treads and armorgrids, has opened- a Chicago district office at 223 Railway Exchange building, Chicago, in charge of **Lon Sloan.**

Ires Prosser has been appointed southeastern representative of the **Botfield Refractories Company,** Philadelphia, Pa., manufacturers of Adamant fire brick cement, with headquarters at Atlanta, Ga.

M. J. Schmitt, formerly in charge of Milwaukee branch of the **Kearney & Trecker Corporation,** has been promoted to the new position of assistant sales manager. Mr. Schmitt will continue to look after the Milwaukee territory with the assistance of **R. F. Shaw,** who is being transferred from the Chicago branch to the home office at Milwaukee.

E. W. Thornley, formerly assistant purchasing agent of the Baltimore & Ohio and regional supervisor of stores, Allegheny region, of the United States Railroad Administration, has been appointed purchasing agent of the **American Smelting & Refining Company,** with headquarters at New York, to succeed **E. R. Reets,** who resigned effective January 5.

F. D. Spear, president of the **Armspear Manufacturing Company,** New York, has been elected chairman of the board, **C. K. Freeman,** vice-president and treasurer, has been elected president. **J. S. Pixley,** secretary, has been elected vice-president and treasurer, and **Arthur G. Johnson,** representative at New York, has been elected secretary and general sales manager.

The Graybar Electric Company, New York City, has made the following changes in its organization: **J. F. Davis,** formerly sales manager at Boston and later manager at Pittsburgh, has been appointed manager at Boston; **A. R. Loughborough,** sales manager at Cincinnati, has been appointed manager at Pittsburgh to succeed Mr. Davis; **H. W. Dye** has been appointed service and credit manager at Denver, replacing **J. Hageman,** credit manager, the latter having been transferred to St. Louis; **Louis Fiille,** general auditor since the reorganization of the company in 1925, has been elected secretary and **Martin Wagner** has been elected assistant secretary.

T. M. Girdler, vice-president in charge of operations of the **Jones & Laughlin Steel Corp.,** Pittsburgh, Pa., was elected president at a meeting of the board of directors on January 12; **W. J. Creighton,** controller, was elected vice-president and a member of the board of directors and **W. C. Robinson** was elected a member of the board of directors; **William D. Evans** and **William L. Jones, Jr.,** were added to the executive committee; **W. H. Dupka** was elected comptroller and assistant secretary. In the operating department **R. J. Wysor** assistant general manager, who has been with the corporation since 1925, has been appointed general manager of all works and properties, to succeed Mr. Girdler in these duties; **Frederick E. Fieger,** general superintendent, of the Aliquippa works succeeds Mr. Wysor; **J. Z. Collier,** general superintendent of the South Side works, succeeds Mr. Fieger; **S. S. Marshall, Jr.,** assistant general superintendent of the South Side works, succeeds Mr. Collier and **H. D. Stark** succeeds Mr. Marshall.

Four Engineering Companies Combine

Four engineering firms have combined their interests and organized the United Engineers & Constructors, Inc. These companies are the United Gas Improvement Contracting Company, Philadelphia, Pa., the Public Service Production Company, Newark, N. J., Dwight P. Robinson & Co., Inc., New York, and Day & Zimmermann Engineering & Construction Co., Philadelphia. The headquarters of the new company will be in Philadelphia, with offices in New York, Newark, Chicago, Los Angeles, Atlanta, Houston, Pittsburgh, Montreal, Buenos Aires and Rio de Janeiro. Dwight P. Robinson is president of the company. The directors are Arthur W. Thompson, president of the United Gas Improvement Company, chairman; Dwight P. Robinson; Thomas N. McCarter, president, Public Service Corporation of New Jersey; Samuel T. Bodine, chairman of board of directors, the United Gas Improvement Company; Paul Thompson, a vice-president of the United Gas Improvement Company and president of the Philadelphia Gas Works Company, and John E. Zimmermann, president of Day & Zimmermann, Inc. The new company has contracts in hand amounting to more than $100,000,000.

Dwight P. Robinson has for 35 years been engaged in construction enterprises. He was born in Boston, Mass., on May 1, 1869. In 1890 he was graduated from Harvard and two years later from the Massachusetts Institute of Technology, where he obtained his electrical engineering education. After graduation he was an assistant in the mechanical engineering laboratory at the latter institution and in 1893 joined the organization of Stone & Webster. Within a few months he was placed in charge of the Chicago

Dwight P. Robinson

office of that company. From 1895 until 1903 he was engaged in operating light and power properties under Stone & Webster management. In 1903 Mr. Robinson returned to Boston in charge of all Stone & Webster engineering, and when the Stone & Webster Engineering Corporation was formed he was made president in charge of both engineering and construction activities. In 1912 he was admitted to partnership. From 1912 to 1918 he had charge of notable hydro-electric developments in several states and the building of steam power stations.

Mr. Robinson served as the first president of the American International Shipbuilding Corporation, which developed Hog Island. He resigned from this company in the spring of 1918 and in the fall of that year organized Dwight P. Robinson & Co., Inc., New York, to conduct an engineering and construction business.

In 1920, Dwight P. Robinson & Co., Inc., absorbed Westinghouse, Church, Kerr & Company, established in 1884, railroad and industrial builders. Dwight P. Robinson & Co., Inc., has been engaged in large construction projects, including

industrial, railway, shipping, housing structures, also designing and constructing steam power stations, hydro-electric developments, etc. The company also has performed a large volume of work in Brazil.

The United Gas Improvement Contracting Company was incorporated in April, 1919. It has built and equipped gas and electric plants, office buildings, factories, bridges, piers, tunnels and roads.

The Public Service Production Company, a subsidiary of the Public Service Corporation of New Jersey, was incorporated on January 27, 1922. It built the $33,000,000 Kearny electric station, the Harrison gas works of Public Service, as well as a large number of substations, garages and other buildings, and has erected considerable mileage of high tension lines, also built roads and has performed many engineering and construction services for public utility, industrial concerns and steam railroads.

The Day & Zimmermann Engineering & Construction Co., was organized by Day & Zimmermann, Inc., to handle its engineering and construction activities. This firm has 25 years' experience in the layout, design and construction of industrial plants, power plants, transmission lines and a wide variety of general structures.

The work of Day & Zimmermann Engineering & Construction Company is entirely separate from the investigation, report, and management work which is done by Day & Zimmermann, Inc.

Obituary

Herbert G. Thompson, president of the Anchor Post Fence Company, with office at New York, died on January 11 while leaving the Grand Central Terminal after returning from a business trip. Mr. Thompson was 57 years old.

Edwin L. Ryerson, chairman of the board and president from 1888 to 1911 of Joseph T. Ryerson & Son, Inc., Chicago, died in that city on January 19, following a paralytic stroke.

Charles J. Webb, vice-president and general sales manager of the **International Seal & Lock Company**, Chicago, died en route from San Francisco to Honolulu on January 3. He was born on July 7, 1863 at Nortonville, Kan., and entered railway service as a telegraph operator on the Chicago, Burlington & Quincy. Later he was appointed local agent and in 1885 resigned to enter the employ of the Atchison, Topeka & Santa Fe where he worked successively in the accounting, treasury and operating departments. On March 1, 1904 he resigned from the Santa Fe as auditor of the Panhandle & Santa Fe at Beaumont, Tex., to become general sales manager of the International Seal & Lock Company. Later he became vice-president and general sales manager, which position he held until his death.

William Schwanhausser, chief engineer of the Worthington Pump & Machinery Corp., died on January 15 at the Peck Memorial hospital, Brooklyn, N. Y., after six months' illness, at the age of 73. Mr. Schwanhausser was born in Wurtzburg, Bavaria, and his first mechanical experiences were in connection with the manufacture of German sugar machinery. He was afterward graduated from the Polytechnic Institute in Mittweida, Saxony, receiving his degree as mechanical engineer in 1874. He came to this country and was employed by Osterheld & Eichmeyer, Yonkers, N. Y., where he actively assisted in the development of engines, pumps, typewriters, the Eichmeyer electric motor and agricultural mowers and reapers. Later he became assistant superintendent of the Otis Elevator Company, where he spent eight years on the improvement of the hydraulic

William Schwanhausser

elevator, then in its infancy. In 1885 Mr. Schwanhausser became connected with Henry R. Worthington and was placed in charge of the manufacture of pumps, at the Worthington Hydraulic Works, at that time located in Brooklyn. During the next ten years the business increased largely through Mr. Schwanhausser's introduction of Worthington products into European markets. In 1895 he was placed at the head of the Worthington interests in Germany. In 1906 he became chief and consulting Engineer of the International Steam Pump Company, which was a corporation including Worthington and other pump manufacturers in the United States. This company was later re-organized as the Worthington Pump & Machinery Corporation, Mr. Schwanhausser still retaining his title. During the war he built for the Worthington interests one of the largest ammunition plants in the country.

COAL CARBONIZATION.—The KSG process for low temperature carbonization of coal is described in catalogue KSG-2 issued by the Combustion Engineering Corporation, 200 Madison avenue, New York. This process, by the low temperature carbonization of otherwise waste coal, produces a smokeless free-burning domestic fuel, a gas of high calorific value, and an unusually large yield of tar.

Construction

CITY OF ST. PAUL.—The Railroad and Warehouse Commission of Minnesota has approved the plans of the city of St. Paul, Minn., for the construction of a viaduct over the tracks of the Chicago, Burlington & Quincy, the Great Northern, the Northern Pacific and the St. Paul Union Depot Company at Third street, St. Paul, to replace a structure erected in 1887. It is planned to construct a viaduct having a grade not greater than 4.1 per cent, somewhat less than the grade on the present viaduct, with a 45-ft. roadway at a total estimated cost of $455,000. The commission ordered that the railroads involved contribute 50 per cent of the cost.

DETROIT, GRAND HAVEN & MILWAUKEE.—This company has applied to the Interstate Commerce Commission for authority to construct a relocation of its existing line between Royal Oak township and Bloomfield township, Oakland County, Mich., 8.88 miles, and to abandon its present line of 9.1 miles between the same points.

NORFOLK & WESTERN.—This road has given a contract to the Walton Construction Company, Roanoke, Va., for the construction of a railroad yard with 14 miles of tracks, track scale, water facilities and yard offices at Winston Salem, to cost about $800,000.

PENNSYLVANIA.—D. S. Warfel of Lancaster, Pa. has been awarded a contract for the construction of the express building at the new passenger station at Lancaster, Pa. to cost $60,000. A contract has also been let to the Hughes-Foulkrod Company of Philadelphia, Pa., for the construction of a passenger bridge, platforms, shelters and baggage tunnel at the new station at Lancaster at a cost of $225,000.

TEXARKANA UNION STATION.—The date of receiving bids for the construction of a union station at Texarkana, Ark., by E. A. Hadley, chief engineer of the Missouri Pacific, which will serve the Missouri Pacific, the Texas & Pacific, the St. Louis Southwestern and the Kansas City Southern, has been extended from December 21 to January 28. This project, which will involve an expenditure of about $1,700,000, will include the construction of a two-story main building, a one-story mail annex and accompanying train sheds. Construction will be of brick, stone, steel and reinforced concrete.

UNION PACIFIC.—The Wyoming Public Service Commission has approved the proposal of this company to construct a line from its Platte Valley branch, near Creighton, Wyo., to a connection with its main line at Egbert, Wyo., 53 miles. The cost of the project is estimated at $2,700,000.

Southern Improvements in 1927

In 1927, the Southern continued its improvement program and during the year invested $15,000,000.00 in providing enlarged and more modern facilities for handling freight and passenger business. Early in the year a new engine terminal was placed in service at Chattanooga, Tenn., in connection with the Citico Yard, which was enlarged in 1926. A 35-stall reinforced concrete roundhouse and auxiliary buildings were included. At Grand Crossing, Fla., near Jacksonville, a similar terminal with a 10-stall roundhouse was constructed, supplementing the classification yard, built in 1925.

The largest project undertaken and completed during the year was the enlargement of Andrews yard, at Columbia, S. C. and the construction of a new engine terminal. New tracks were built, doubling the capacity of the yard and giving room for more than 2,000 cars. The engine terminal consists of a 20-stall roundhouse, smith and machine shop, a number of smaller buildings and freight car repair facilities. At Winston-Salem, N. C., eight and one half miles of yard track were laid and a new engine terminal with six-stall roundhouse was built. Substantial additions were made to the yard tracks at Pomona, N. C., near Greensboro, the junction of the Winston-Salem division with the Washington-Atlanta line. Additional yard tracks and a small engine terminal were built at East Durham, N. C., the junction of the Durham branch of the Richmond Division with the Greensboro-Goldsboro line.

Mechanical coal handling plants were built at Citico, Grand Crossing, Andrews yard and Winston-Salem in connection with the construction of the new engine terminals and also at Monroe, Va., Atlanta Junction, Ga., near Rome, Bulls Gap, Tenn., Coster, Tenn., near Knoxville, Sheffield, Ala., Anniston, Ala., and Lawrenceburg, Ky.

The line of the North Carolina between Greensboro and Selma over which the Southern handles the greater part of its traffic to and from Norfolk and Pinners Point, was strengthened to permit the use of heavier and more powerful locomotives. This required the renewal of twelve structures, the most important being the bridges over the Neuse and Haw rivers and Back Creek.

Local freight handling facilities were improved at Asheville, N. C. Charlotte, N. C., and Rock Hill, S. C. At Asheville an entirely new terminal consisting of warehouse, transfer platform and team tracks was built in the Biltmore bottoms. At Charlotte the car capacity of the freight house was increased and new team tracks served by paved driveways were built. The warehouse and track facilities at Rock Hill were enlarged.

During 1927, the Southern continued the work of laying its more important lines with heavier rail. Purchases for the year amounted to 85,000 tons, mostly of 100-pound section, and approximately 500 miles of track were laid with new rail, while relay 85 pound rail was laid on lines formerly equipped with rail of lighter sections.

Financial

ALBANY & EASTERN.—*Incorporation.*—Articles of incorporation have been filed by this company with the Oregon corporation department for the construction of a railroad from a point north of Albany, Ore., east to Bend. The capital stock is listed at $20,000. The incorporators are H. P. Byers, Robert Manary and Robert J. Brady.

BELGIAN NATIONAL RAILWAYS COMPANY.—*American Stock Offered.*—The National City Company, Brown Brothers & Co., the Shawmut Corporation of Boston, L. F. Rothschild & Co., and Banque Belge pour l'Etranger announced an offering on January 17 at $85.50 per share of 50,000 American shares of Belgian National Railways participating preferred stock.

The 50,000 American shares represent 250,000 shares of the Belgian company's participating preferred stock which have been deposited with the National City Company as depositary. The American shares will be exchangeable at any time for the proportionate number of Belgian shares. The 6 per cent fixed dividend on the participating preferred stock is an obligation of the Belgian Government, which holds the entire outstanding common stock of the railroad system.

The Belgian National Railways Company was organized to take over for 75 years, beginning September 1, 1926, the operation of all the railroads previously operated by the government. It operates about 3,000 miles or about 95 per cent of the railroad mileage in the country.

Holders of the participating preferred stock are entitled to a fixed 6 per cent dividend or about $4.12 net for each American share—an obligation of the Belgian Government and not a charge against the railway—and to super-dividends payable pro rata after the end of each fiscal year equivalent to one-half the net profits of the railway after deductions covered by the by-laws. Official statements made when the stock was issued indicated the payment of a super-dividend of from 2 to 3 per cent, (equivalent to $1.39 to $2.08, an American share) provided such a rate should not retard Belgium's general economic development.

It is expected that a super-dividend of about 2.7 per cent (equivalent to about $1.86 net per American share) will be paid out of earnings for the fiscal year ending December 31, 1927.

The price of $85.50 includes fixed dividend accrued from September 1, 1927, and the right to full super-dividend for the first fiscal year ending December 31, 1927. Based upon the fixed dividend of 6 per cent per annum and an expected super-dividend of 2.7 per cent per annum, the current yield at the above price would be 7.29 per cent.

CAMBRIA & INDIANA.—*Bond Application.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $1,800,000 of first mortgage 4½ per cent gold bonds, to be sold to Drexel & Co., at 97. The public offering of these bonds was quoted in the *Railway Age* of January 14.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*New Directors.*—The following have, with the approval of the voting trustees, been elected directors of the new company: Mortimer N. Buckner, New York; Harry E. Byram, Chicago; Henry A. Scandrett, Omaha; Donald Geddes, New York; Frederick H. Ecker, New York; Samuel Fisher; W. D. Van Dyke, Milwaukee; W. W. Colpitts, New York; George Roosevelt, New York; Robert T. Swaine, New York; Mark W. Potter, New York; W. W. K. Sparrow, Chicago; Walter Chrysler, New York; Joshua Green, Seattle. There is still one member to be appointed.

The special master's deed to the properties has been delivered to the new company and the court has fixed February 15 as the date after which the reorganization managers may terminate the right to deposit.

The reorganization managers, Kuhn, Loeb & Co. and the National City Company, on January 16 issued notice to the stockholders of certificates of deposit for stock calling for payment of their assessments as follows:

In the case of the certificates of deposit for preferred stock the holders are required

(a) to pay, on or before February 16, 1928, $28.05 per share of preferred stock represented thereby (being the sum of $28 per share mentioned in the reorganization plan and agreement, plus accrued interest from February 1, 1928, upon the $24 principal amount of 50-year 5 per cent mortgage bonds issuable against such payment); or at their option,

(b) to pay, on or before February 16, 1928, $14.05 per share (being 50 per cent of the sum so mentioned, plus such adjustment for accrued interest) and the remaining $14 per share on or before June 1, 1928, with interest on such deferred payment at the rate of 6 per cent per annum from February 16, 1928, to the date of payment.

In the case of the certificates for common stock, the holders are required

(a) to pay, on or before February 16, 1928, $32.06 per share of common stock represented thereby (being the sum of $32 per share mentioned in said plan and agreement, plus accrued interest from February 1, 1928, upon the $28 principal amount of 50-year, 5 per cent mortgage bonds issuable against such payment); or at their option,

(b) to pay, on or before February 16, 1928, $16.06 per share (being 50 per cent of the sum so mentioned, plus such adjustment for accrued interest) and the remaining $16 per share on or before June 1, 1928, with interest on such deferred payment at the rate of 6 per cent per annum from February 16, 1928 to the date of payment.

The 50-year 5 per cent mortgage bonds issuable under the reorganization plan in respect to the payments of assessments by holders of certificates of deposit for stock will bear interest from February 1, 1928.

The reorganization managers also included in their announcement the following statement:

The reorganization managers believe that because of the market value of the new bonds and shares, and because of the active market in the new securities, all stockholders who may desire to borrow funds to pay their assessments, should be able to make the necessary arrangements at

their own banks or other financial institutions. If, however, any small stockholders of long standing who purchased their stock as an investment, should be unable to make such arrangements themselves they may communicate with the undersigned reorganization managers, stating their names and addresses, the amount of stock held, the date when such stock was purchased and the nature of the assistance desired. The reorganization managers will endeavor to assist any such stockholders to finance their participation in the plan.

Holders of undeposited bonds, stock and claims have been advised that they may still participate in the reorganization by depositing their bonds and stock, or assignments of their claims, on or before February 16, 1928, after which date the right to deposit may be terminated without notice.

The announcement by the reorganization managers gives the list of the depositaries, all of which except two are in New York, the other two being in Paris and London. In addition to this is also given a list of sub-depositaries which includes banks and trust companies in Boston, Philadelphia, Pittsburgh, Chicago, St. Paul, Minneapolis, Milwaukee and Seattle.

CENTRAL VERMONT.—*Receivers' Certificates.*—The receivers have applied to the Interstate Commerce Commission for authority to issue $5,000,000 of 4½ per cent receivers' certificates, to be sold to Dillon, Read & Co., at 99.53 and interest, the proceeds to be used in repairing damage resulting from the recent floods in New England.

CHICAGO & NORTH WESTERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority for the authentication and delivery of $1,375,000 of general mortgage 4½ per cent bonds of 1987, to be held in its treasury until further order of the commission.

CHICAGO & WESTERN INDIANA.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue during 1928 $176,000 of its consolidated 4 per cent mortgage bonds.

FORDYCE & PRINCETON.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon about 6 miles of its line from Bryant's Spur, Ark. to a point near Cynthiana.

GREAT NORTHERN PACIFIC. — *Merger Opposed by St. Paul.*—Hearings on this company's application for authority to acquire control of the Great Northern, the Northern Pacific and the Spokane, Portland & Seattle, before Commissioner Brainerd of the Interstate Commerce Commission and Director Mahaffie of the commission's Bureau of Finance, were resumed at Washington on January 16 for the purpose of taking testimony in behalf of the Chicago, Milwaukee, St. Paul & Pacific in opposition to the application.

H. E. Byram, chairman of the board of the Milwaukee, testified on January 18 that the proposed unification would create and preserve an unbalanced condition as between carriers of the Northwest in respect of earning power, competitive strength and financial credit; that it would make the lines of the Northwest that are now comparatively strong relatively stronger, and those that are comparatively weak, relatively weaker, and that it would so occupy the field as to prevent future consolidations that would be in the best interests of the public and of the railroads as a whole. The plan, he said, leaves entirely to the future the matter of taking care of the smaller and weaker lines, and as it would include, in practical effect, the properties of the Burlington, it would "to a large and unnecessary degree, eliminate competition now existing between the applicant lines and would unbalance competition now existing between those lines and other lines of the Northwest."

Mr. Byram expressed the opinion that the greater part of the economies promised could be effected without corporate union of the roads and said that even if realized, the estimated saving of $10,000,000 would not be enough to affect the general rate level of the territory involved. Whether the plan would be in the public interest, therefore, he said, must be determined by much broader considerations and by the application thereto of the standards of the transportation act. He pointed out that both the Ripley report and the commission's tentative consolidation plan contemplated the division of the railroads west of the Mississippi into seven systems and said that the suggestion of a four-system plan made by President Holden of the Burlington was made because of a desire to bring about consolidation of the Great Northern, Northern Pacific and Burlington. "The practical consolidation of the two strongest lines of the Northwest with the strongest lines in the Central West will thus create in the northern half of the entire territory west of the Mississippi a combination that can never be matched by any other consolidation of lines in that vast territory," he said, and adding that the Milwaukee should not be subjected to the disadvantages which the proposed unification would bring to bear upon it.

W. W. Colpitts, of Coverdale & Colpitts, testified that the proposed unification would produce a system out of proportion to other systems in the territory and that no system should be of such magnitude or control such a volume of competitive traffic as to overshadow others. He gave figures to show that it would represent about one-fifth of the mileage of the western district and that it would exceed in earning power, although not in mileage, a combination of the Union Pacific, St. Paul and Northwestern.

C. S. Christoffer, general superintendent of the St. Paul, testified at length regarding the terminal situation at Duluth and Superior, saying that, as a result of an exhaustive study, he was convinced that the economies promised as a result of the merger could as readily be effected without an unification of the companies. He was followed by Charles H. Smith, consulting engineer, of New York, who replied to testimony regarding the savings to be effected by giving to the Great Northern access to coal supplies located along the line of the Northern Pacific in Southern Montana. He said that the Great Northern could obtain the use of this coal by arranging for a haul over the Northern Pacific or by arrangement with the government for mining the coal, and also that there are large supplies of lignite available along the Great Northern. Chester Oliphant, statistician of the St. Paul, testified that a merger of the Great Northern and Northern Pacific would create a "transportation monopoly in the Northwest that would completely dominate the competitive field" and would virtually create a system of 27,000 miles, since the two roads control the Burlington and its subsidiaries.

"The combination would constitute one-fifth of the total Class I railway mileage west of Chicago," he said and in that territory no other single system would have half as much mileage or strength. The gross and net earnings of the proposed system would likewise be approximately one-fifth of the total for the entire Western district. Its physical valuation would be about $2,000,000,000, out of a total valuation of $8,000,000,000 for all the Class I Roads of the West. In addition, the earnings on valuation of the proposed system are far superior to other roads in the western district, being from 20 to 30 per cent greater than the average."

Mr. Oliphant's figures showed that the proposed combination would handle approximately 70 per cent of all transportation business in the northwestern tier of states; and that it would control, through location, about an equal proportion of the industries of the Northwest, which would be on its tracks. He also said that the earnings of the St. Paul in the same territory would be only 75 per cent per mile of those of the Northern roads.

Mr. Oliphant deduced from his exhibits the fact that the establishment of "such an overpowering transportation monopoly in the Northwest" would completely disrupt the competitive field and would violate the spirit and terms of the Transportation Act.

LEHIGH VALLEY.—*Contest at Annual Meeting.*—The annual meeting of the Lehigh Valley, held at Philadelphia on January 17 was the scene of a spirited contest between interests affiliated with the present management and those associated with L. F. Loree, president of the Delaware & Hudson. The contest resolved itself into an extended argument regarding proxies and the final vote indicated that President E. E. Loomis was able to show control of 514,466 shares while Mr. Loree voted 508,342. Mr. Loree, claimed to have control of a majority of the stock. A proxy for 46,700 shares was presented, made out by Kuhn, Loeb & Co., but the judges of the election refused to recognize it because it had been made out within the 60 days prior to the election. Under the rules of the company the right to vote is given to holders of stock 60 days before the election. The 46,700 shares are said to be the property of the Wabash; they were in the hands of a broker who has since gone out of business.

In addition to the 46,700 shares of stock tendered by the Loree interests and disfranchised by the judges of election,

there were about 99,000 shares of other stock not eligible to vote by reason of transfer within the last sixty days. Thus, of the outstanding 1,212,160 shares of stock, approximately 1,067,000 were eligible to vote. A majority vote would therefore have to be in excess of 533,600. Duplicate proxies for about 40,000 shares were cast by the contending interests, the judges deciding which proxies were of latest date and eligible to vote.

The contest between the opposing groups was not carried beyond the comparative showing of strength. The stock controlled by the interests affiliated with Mr. Loree was voted in favor of retention of the present management and both groups joined in the election of two new directors, namely: Effingham B. Morris, Jr. of Philadelphia and Allen C. Dodson of Bethlehem, Pa. The two new directors will fill vacancies occasioned by the retirement of J. William Robbins and Dr. H. S. Drinker.

The parties affiliated with Mr. Loomis were J. P. Morgan & Co., the First National Bank of New York and the New York Central. Said to be associated with Mr. Loree were Kuhn, Loeb & Co., Ladenburg, Thalmann & Co., and the Pennsylvania.

After the meeting the respective interests were quoted as follows:

"It seems to me this vote shows that I represent the Lehigh Valley Railroad, and I propose to do so in future conferences," said Mr. Loomis. "The principal thing I have objected to all along is that Mr. Loree has been claiming control."

"I am well satisfied with the outcome," Mr. Loree was quoted as having said. We elected our candidates, Mr. Morris of Philadelphia and Mr. Dodson of Bethlehem, to the Lehigh Valley Board, and that in itself will give us a voice in the management of the road. I am also well satisfied with the present management of the Lehigh Valley.

"The Lehigh Valley group voted about 514,000 shares of stock at the meeting, while we voted about 508,000 shares, and there were 46,700 shares which we had that were disfranchised. So far as it being a 'victory' for us, we will let the public draw its own conclusion."

LINN COUNTY LOGGING & LUMBER COMPANY.—*Incorporation.*—Articles of incorporation have been filed with the corporation department of Oregon by this company for the construction of a railroad between Lebanon, Ore., and Cascadia, about 30 miles.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*New Director.*—C. A. Craig, president of the National Life & Accident Insurance Company, has been elected a member of the board of directors, succeeding Jo. B. Morgan, deceased.

NEW YORK CENTRAL.—*Merger Hearing.*—Additional hearings have been held before Director Manhaffie and Examiner Molster of the Bureau of Finance of the Interstate Commerce Commission beginning on January 9 on this company's application for authority to lease the Michigan Central and Cleveland, Cincinnati, Chicago & St. Louis, with particular reference to the relationship of these lines to connecting short lines that have asked to be included in the proposed merger.

NEW YORK, NEW HAVEN & HARTFORD.—*Stock.*—The Interstate Commerce Commission has authorized an issue of $39,029,000 of common stock to be exchanged, par for par, for 6 per cent convertible debentures.

ST. JOHNSBURY & LAKE CHAMPLAIN.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $300,000 of 4½ per cent notes maturing serially for 20 years to the state of Vermont for a loan for the restoration of the company's property and service required as a result of the recent floods.

WABASH.—*Dividend Suit Dismissed.*—Federal Judge Francis A. Winslow in the United States District Court at New York dismissed on January 13 the suit brought by John C. Barclay, a holder of preferred Class A stock, to force payment of dividends of 5 per cent annually on those shares from 1915 to 1926, inclusive, before any further payments are made on the Class B and common stocks. In his opinion, Judge Winslow held that the dividend on the preferred A stock is non-cumulative and is not a fixed charge on the net earnings of the company. It is expected that an appeal will be taken.

WHEELING & LAKE ERIE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell at not less than 94 $894,000 of 5 per cent refunding mortgage bonds for the purpose of taking up an equal amount of Wheeling division bonds to be deposited as collateral security with the trustee of the refunding mortgage.

Average Price of Stocks and of Bonds

	Jan. 17	Last week	Last year
Average price of 20 representative railway stocks..	119.09	119.28	104.01
Average price of 20 representative railway bonds..	97.42	97.53	93.50

Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for rate-making purposes of the property owned and used for common carrier purposes, as of the respective valuation dates, as follows:

East Broad Top Railroad & Coal Co.	$1,697,000	1917
Susquehanna & New York	1,333,249	1917
Troy Union	1,101,305	1917
St. Joseph Union Depot Company	$495,361	1917
Keokuk Union Depot Company	97,292	1918
East Carolina	483,490	1917
Paducah & Illinois	4,850,000	1919
Upper Merion & Plymouth	367,150	1917
Tonopah & Goldfield	1,812,150	1915
Union Transportation Co.	46,422	1918
Birmingham & Southeastern	702,060	1918
Hannibal Union Depot Co.	178,000	1918
Canton	536,750	1918
St. Clair Terminal	1,400,000	1919
Chicago Heights Terminal Transfer	845,000	1919
Norfolk & Portsmouth Belt	1,038,750	1916
Kansas City, Mexico & Orient of Texas	6,744,673	1919
Minneapolis & Rainy River	1,123,004	1915
Railway Transfer of Minneapolis	933,625	1917

Officers

Executive

H. Wheeler, general manager of the White Pass & Yukon Route, with headquarters at Seattle, Wash., has been elected president and general manager, with headquarters at Chicago. **G. C. Hans Hamilton** has been elected vice-president, with headquarters at Chicago.

John E. Kelley has been elected president of the North Louisiana & Gulf, with headquarters at Hodge, La., succeeding **O. E. Hodge,** who has been elected vice-president. **J. S. Hunt,** general manager with headquarters at Hodge, has been elected vice-president in charge of operation. **Willard J. Henry** has been elected vice-president, with headquarters at Hodge.

T. T. Maxey, assistant centenary director of the Baltimore & Ohio at Baltimore, Md., has been appointed special representative of the president of the Delaware, Lackawanna & Western, reporting to him and handling duties as assigned, with headquarters at New York. Mr. Maxey became advertising agent of the Chicago, Burlington & Quincy at Chicago in 1910. During the war he served with the troop movement division and later was appointed vice-chairman of the Western Lines Advertising Committee. He was then detailed as assistant in the Bureau of Suggestions and Complaints of the United States Railroad Administration in Washington, D. C., during federal control. Mr. Maxey returned to the Burlington on March 1, 1920, as general advertising agent.

W. N. Deramus, who has been elected vice-president and general manager of the Kansas City Southern, with headquarters at Kansas City, Mo., succeeding **Charles E. Johnston,** who became

W. N. Deramus

president on January 1, was born on March 25, 1888, at Coopers, Ala. He entered railway service at the age of 15 years on the Louisville & Nashville and

in 1905 he was employed by the Southern. Mr. Deramus first entered the service of the Kansas City Southern in November, 1910, as a telegraph operator, being advanced to train dispatcher on February 15, 1912. On June 1, 1915, he was further advanced to chief dispatcher and on April 1, 1918, he was promoted to superintendent of car service, with headquarters at Kansas City. Mr. Deramus was promoted to superintendent of the Southern division on January 10, 1925, a position he held until his election as vice-president and general manager on January 1.

Richard Hackett, who has been elected vice-president of the Los Angeles Junction Railway and the Judson Forwarding Company, with headquarters at Chicago, entered the service of the New York, New Haven & Hartford in 1899 in the local freight station at New Haven, Conn. He advanced through a number of positions in the offices of the general freight agent and the freight traffic manager at New Haven, and in 1918 he was advanced to assistant to the traffic manager. Mr. Hackett was again promoted to assistant to the vice-president in charge of traffic in 1920, with headquarters at New Haven, where

Richard Hackett

he remained until July, 1924, when he was appointed western freight traffic manager, with headquarters at Chicago. He remained as western freight traffic manager until his election as vice-president of the Los Angeles Junction and the Judson Forwarding Company on January 1.

Financial, Legal and Accounting

Charles N. Burch, who has been promoted to general solicitor of the lines of the Illinois Central south of the Ohio river, with headquarters at Memphis, Tenn., was born on December 27, 1868, at Nashville, Tenn. He graduated from Vanderbilt University in 1888, receiving the degree of bachelor of laws from the same university in 1889. Mr. Burch then began the practice of law at Nashville, becoming assistant city attorney in 1895 and assistant United States district attorney at Nashville in 1896. He first entered railway service in 1898 as assistant district attorney of the Louisville & Nashville for Tennessee and in the following year he was promoted to district attorney for Tennessee. In 1901 Mr. Burch was again promoted to general solicitor of the L. & N. and in 1903

Charles N. Burch

he became general counsel, with headquarters at Louisville, Ky. He was appointed general solicitor of the Yazoo & Mississippi Valley and district attorney of the Illinois Central for Tennessee, with headquarters at Memphis in 1905, a position he held continuously until his promotion to general solicitor of the southern lines of the Illinois Central on January 1.

William D. Steele, who has been appointed auditor of freight accounts of the Seaboard Air Line, with headquarters at Portsmouth, Va., was born on November 28, 1887, at Rock Hill, S. C. He attended public school and studied for a year at Catawba Military Academy, at Rock Hill. He entered railway service on September 1, 1902, with the Southern as an office boy in the local

W. D. Steele

freight office at Rock Hill and later served at various points as bill clerk, rate clerk, claim clerk, cashier, agent and traveling auditor, with other roads in the southeast. In August, 1917, Mr. Steele entered the service of the Tennessee Central as station accountant in the auditor's office at Nashville, Tenn. He resigned in February, 1920, to go with the Seaboard Air Line as traveling accountant, resigning in August of the same year to become special accountant with the Nashville, Chattanooga & St. Louis, at Nashville, Tenn., being assigned to the preparation of special reports which were used in the final settlement between the N. C. & St. L and the United States Railroad Administration. He resigned on December 4, 1920, and became chief clerk to the auditor of the subsidiary lines of the Seaboard Air Line at Portsmouth, Va. Mr. Steele was advanced to assistant to auditor of the subsidiary lines in March, 1922, and in October of the same year was transferred to the auditor of freight accounts' office of the Seaboard Air Line as chief clerk to the auditor of freight accounts. Mr. Steele became assistant to the auditor of freight accounts on January 1, 1924, which position he was holding at the time of his recent appointment.

H. Dent Minor, who has been promoted to general attorney of the lines of the Illinois Central south of the Ohio river, with headquarters at Mem-

H. D. Minor

phis, Tenn., was born at Macon, Miss., on March 9, 1868. Mr. Minor graduated from the Agricultural and Mechanical College of Mississippi in 1887 and obtained his legal education at the University of Virginia, receiving a law degree in 1890. After graduating from the University of Virginia he became a member of the editorial staff of the American and English Encyclopedia of Law at Northport, N. Y., and in 1893 he prepared the second edition of a treatise on railroad law. In 1894 Mr. Minor began the practice of law at Memphis, serving also from 1903 to 1906 as standing master in the federal court and from May, 1909, to August, 1910, as chancellor at Memphis. He was then appointed general attorney of the Yazoo & Mississippi Valley and district attorney for Tennessee of the Illinois Central, with headquarters at Memphis, a position he held until his promotion to general attorney of the southern lines of the Illinois Central railroad on January 1.

A. D. Stevens, attorney of Springfield, Ill., has been elected secretary of the Chicago, Springfield & St. Louis, with headquarters in that city.

J. A. Greeson has been appointed secretary of the Murfreesboro-Nashville Southwestern, with headquarters at Nashville, Ark.

John N. Harvey and **Frank X. Rice** have been appointed treasurer and assistant treasurer respectively of the North Louisiana & Gulf, with headquarters at Hodge, La. **R. L. Fitts** has been appointed treasurer, with headquarters at Hodge.

Edward C. Craig, who has been promoted to general solicitor of the lines of the Illinois Central north of the Ohio river, with headquarters at Chicago, was born on April 7, 1872, at Mattoon, Ill. He graduated from the University of Illinois in 1893 and after attending Harvard Law School he was admitted to the bar in 1896. Mr. Craig began the practice of law as a partner

Edward C. Craig

with his father at Mattoon in 1896 and later in partnership with his brothers. In 1901 he was appointed local attorney of the Illinois Central at Mattoon and in January, 1923, he was promoted to general attorney, with headquarters at Chicago. Mr. Craig held the latter position continuously until his further promotion to general solicitor of the northern lines of the Ilinois Central on January 1.

Operating

The Georgia, Florida & Alabama, being operated under lease by the Seaboard Air Line, has been temporarily assigned to the jurisdiction of the superintendent of the Alabama division.

Owen O'Connor has been appointed superintendent of the Harlem and Putnam divisions of the New York Central and the Ottawa & New York, with headquarters at White Plains, N. Y.

W. R. Sugg has been appointed superintendent of fuel conservation of the Missouri Pacific, with headquarters at St. Louis, Mo., succeeding **S. L. Landis.**

M. H. Straughan, chief engineer of the Murfreesboro-Nashville Southwestern, with headquarters at Murfreesboro, Ark., has been appointed superintendent and master mechanic, with headquarters at the same point.

R. F. Mattix, terminal trainmaster, and general yardmaster on the West division of the Michigan Central, with headquarters at Niles, Mich., has been appointed trainmaster at the same point. **E. E. Coonrod,** general yardmaster on the West division at Kensington, Ill., has been promoted to terminal trainmaster and general yardmaster at Niles, succeeding Mr. Mattix.

The position of car accountant on the Seaboard Air Line has been abolished and the duties of this position assigned to the superintendent of car service, **C. B. Packer.** The headquarters of the superintendent of car service have been transferred from Savannah, Ga., to Portsmouth, Va. The following positions have been abolished: transportation assistant to vice-president and general agent-operating department.

F. S. Mitten, trainmaster of the Buffalo division of the Lehigh Valley, with headquarters at Buffalo, N. Y., has been appointed superintendent of the Mahanoy & Hazleton division, with headquarters at Hazleton, Pa., succeeding **P. J. Flynn,** who died on January 3. **A. E. O'Dea,** supervisor of transportation, with headquarters at Bethlehem, Pa., has been appointed trainmaster at Buffalo, succeeding Mr. Mitten.

K. C. Marshall, assistant superintendent, Terminals division of the Southern Pacific lines in Texas and Louisiana, with headquarters at Houston, Tex., has been promoted to superintendent of the division, with headquarters at the same point, succeeding **E. A. O'Donnell,** who has resigned. **T. M. Spence,** assistant superintendent of the Dallas division, with headquarters at Ennis, Tex., has been transferred to succeed Mr. Marshall and Mr. Spence has in turn been succeeded at Ennis by **Thomas Scott,** who was assistant superintendent of the Beaumont division, with headquarters at Houston. **H. L. Bell,** division engineer of the Beaumont division, with headquarters at Houston, has been appointed assistant superintendent of the Beaumont division succeeding Mr. Scott. **T. G. Gready** has been appointed trainmaster on the Beaumont division, with headquarters at Houston, succeeding **B. H. McGuire,** who has been assigned to other duties. **J. D. Kinsler** has been appointed trainmaster on the Beaumont division, with headquarters at Houston.

H. T. Moore, trainmaster on the Colorado division of the Missouri Pacific at Osawatomie, Kan., has been transferred to the Joplin division, with headquarters at Pittsburg, Kan., with jurisdiction over the Pittsburg, Asbury and Ft. Scott districts. The position of trainmaster held by Mr. Moore has been abolished and the jurisdiction of **C. W. Pace,** assistant superintendent, has been extended to cover the entire Colorado division, including Hoisington yard, with headquarters as before at Pueblo, Colo. Mr. Moore succeeds **J. K. Hobbs,** who has been transferred to Nevada, Mo., with jurisdiction over the Pleasant Hill, Rich Hill, Granby and Madison districts. **J. S. Bassett,** division engineer at McGehee, Ark., has been appointed master of trains and track of the Lake Providence, Arkansas City and Eudora districts of the Little Rock division and in addition has been given jurisdiction over maintenance of way on these districts, with headquarters at McGehee, and the position of trainmaster held by **L. F. Ginochio** has been abolished. **H. A. Israel,** trainmaster of the Chester and Cairo districts of the Illinois division, has been appointed master of trains and track of the same districts and in addition has been given jurisdiction over maintenance of way, with headquarters at Dupo, Ill. **F. L. Hays,** trainmaster on the Arkansas division, with headquarters at Little Rock, Ark., has been transferred to the Central division, with headquarters at Van Buren, Ark. He has been replaced at Little Rock by **E. M. Bishop.** The jurisdiction of **H. E. Roll,** assistant superintendent of the Louisiana division, with headquarters at Eldorado, Ark., has been extended to include the Gurdon and Ferriday districts, Collinston yard, Natchez-Vidalia river transfer and Natchez yard. The jurisdiction of **J. M. Kelly,** assistant superintendent of the Wichita division, with headquarters at Wichita, Kan., has been extended to include all districts on the division. **M. F. White** has been appointed trainmaster of the Paragould, Memphis and Marianna districts of the Memphis division, with headquarters at Wynne, Ark. The jurisdiction of **C. F. Dougherty,** trainmaster on the Louisiana division, with headquarters at Monroe, La., has been extended to include the Swartz, Monroe, Huttig and Farmerville districts of this division.

Traffic

Jess W. Higgins has been appointed district passenger agent of the Rutland, succeeding **J. W. Porter,** promoted.

C. R. Kersey has been appointed chief of the tariff bureau of the Colorado & Southern, with headquarters at Denver, Colo.

Joseph W. Porter, district passenger agent of the Rutland, has been appointed city passenger agent of the New York Central.

N. R. P. Bonsor has been appointed assistant general agent of the Southern Pacific, with headquarters at Liverpool, England.

L. F. Nelson has been appointed general agent of the Wheeling & Lake Erie with headquarters at Chicago, succeeding **A. B. Murphey** who has been appointed general western freight agent of the Pittsburgh & West Virginia, with headquarters at the same point.

T. **A. Gribbon,** city passenger agent of the New York Central, with headquarters at Chicago, has been appointed general agent passenger department, with headquarters at New Orleans, La.

C. **B. Vansike** has been appointed general agent of the Peoria & Pekin Union at Pittsburgh, Pa. **J. M. Purcell** has been appointed general agent at Kansas City, Mo.

J. A. Roach, assistant general agent in the freight department of the Chicago Rock Island & Pacific at Chicago, has been promoted to general agent in the freight department with headquarters at the same point.

Hugh R. Wilkinson, special representative of the traffic department of the Mobile & Ohio at St. Louis, Mo., has been appointed general coal agent of the Chicago & Eastern Illinois, with headquarters at Chicago, succeeding **E. J. Schmidt,** deceased.

Hugh W. Stanley, Jr., who has been promoted to general passenger agent of the Tennessee Central, with headquarters at Nashville, Tenn., was born in 1896 at Knoxville, Tenn. Mr. Stanley attended the Fishburne Military Academy, Waynesboro, Va., and the Virginia Polytechnic Institute, Blacksburg, Va., and entered the service of the Tennessee Central in November, 1918, as depot ticket agent at Nashville. Two years later he was advanced to city passenger agent at Nashville and in 1922 he was again advanced to traveling passenger

H. W. Stanley, Jr.

agent. Mr. Stanley was promoted to district passenger agent in 1923, a position he held continuously until his promotion to general passenger agent on January 1.

Mechanical

F. **Wiseman,** road foreman of engines on the Michigan Central at Jackson, Mich., has been promoted to assistant master mechanic, with headquarters at the same point.

S. **L. Landis,** superintendent of fuel conservation of the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed road foreman of engines of the Coffeyville, Conway Springs, Arkansas City and Roper districts of the Southern Kansas division, and also of the Kansas City district of the Central Kansas division, with headquarters at Osawatomie, Kan., succeeding **H. J. Wade,** who has been appointed acting road foreman of engines of the Joplin division, with headquarters at Nevada, Mo., succeeding **E. F. Putnam,** who is on leave of absence on acount of ill health.

Walter G. Stenason, who has been appointed master car builder of the Western lines of the Canadian Pacific, with headquarters at Winnipeg, Man.,

Walter G. Stenason

was born on February 12, 1874, at Willesden, England. At the age of 17 he entered railway service in the mechanical department of the Michigan Central at St. Thomas, Ont. In May, 1892, he was appointed a foreman on the installation of track tanks and pumping machinery on the Canada Southern division and in January, 1894, he entered locomotive service. Mr. Stenason returned to the mechanical department in March, 1896, and in December, 1897, during the operation of the Toronto, Hamilton & Buffalo by the Michigan Central, he was transferred to Hamilton, Ont., where he remained in charge of the installation, maintenance and operation of air brakes, until October 1, 1907, when he was appointed assistant air brake inspector of the Eastern lines of the C. P. R. On January 1, 1915, he was promoted to general air brake inspector of the Western lines of the Canadian Pacific, a position he held continuously until his further promotion to master car builder of the Western lines on January 1.

B. C. Nicholson, general foreman on the Parsons district of the Missouri-Kansas-Texas at Oklahoma City, Okla., has been promoted to master mechanic of the Northwestern district, with headquarters at Wichita Falls, Tex., succeeding **R. A. Walker,** who has been transferred to the McAlester district, with headquarters at Muskogee, Okla. Mr. Walker replaces **W. H. McCune** who has been transferred to the North Texas district, with headquarters at Denison, Tex. **A. J. Lewis,** who has been replaced at Denison by Mr. McCune has been transferred to the Parsons district as master mechanic, with headquarters at Parsons, Kan., to succeed **J. J. Melley,** resigned.

Engineering, Maintenance of Way and Signaling

A. J. Beilsmith has been appointed assistant superintendent of telegraph of the Wabash and the Western Union Telegraph Company, with headquarters at Decatur, Ill.

The jurisdiction of **J. R. Nagel,** division engineer of the Missouri division of the Missouri Pacific, with headquarters at Poplar Bluff, Mo., has been extended to include the Illinois division.

G. A. Boyer, roadmaster on the Beaumont division of the Southern Pacific lines in Texas and Louisiana, with headquarters at Houston, Tex., has been promoted to division engineer of the Beaumont division, with headquarters at the same point.

H. C. Sampson, signal supervisor of the Northern division of the Chicago & Alton, with headquarters at Bloomington, Ill., has been appointed signal engineer and superintendent of telegraph, with headquarters at the same point, succeeding **S. U. Rhymer,** deceased.

August F. Stotler, who has been promoted to assistant chief engineer and engineer maintenance of way of the

A. F. Stotler

Northern Pacific lines west of Paradise, Mont., with headquarters at Seattle, Wash., was born on February 22, 1876, at the same point. He attended the Puget Sound College and Paulson Academy and entered railway service in the Fall of 1897 as a chainman on the Northern Pacific. Since that time, with the exception of four months in which he was engaged in private business and a brief period in 1909 as district engineer on the Oregon-Washington Railroad & Navigation Company at Portland, Ore., Mr. Stotler has been continuously in the service of the Northern Pacific for 30 years. After

serving as a rodman and transitman on the Pasco and Pacific divisions of the N. P. he acted successively until 1910 as resident engineer on maintenance on the Idaho, Pasco and Pacific divisions, temporary assistant in connection with the enlargement of the Portland terminals, assistant engineer on maintenance on the Pasco and Pacific divisions and assistant engineer on location and second track construction near Glendive, Mont. Upon his return to railway service in April, 1911, Mr. Stotler was appointed assistant engineer on maintenance, serving until May 1912, on the Seattle and Tacoma divisions when he was appointed supervisor of bridges and buildings and roadmaster of the Tacoma terminals. In May, 1912, he was appointed assistant roadmaster in charge of reballasting for the operating department, becoming supervisor of bridges and buildings on the Puget Sound division for the operating department in 1913 where he was located at Seattle and later at Tacoma. Mr. Stotler was promoted to district engineer of the lines west of Ellensburg, Wash., with headquarters at Seattle in 1917, a position he held continuously until his promotion to assistant chief engineer and engineer maintenance of way on January 1.

F. H. Hibbard, engineer maintenance of way of the Quebec Central, with headquarters at Sherbrooke, Que., has been appointed engineer, with the same headquarters, taking over the duties heretofore performed by **J. T. Morkill,** chief engineer, and **J. Farquhar,** superintendent, bridges and buildings, who have been retired under the company's superannuation regulations.

P. C. Newbegin, who has been appointed chief engineer of the Bangor & Aroostook, with headquarters at Houlton, Me., was born on May 19, 1869, at Defiance, O., and was graduated from Bowdoin College in 1891, and from Massachusetts Institute of Technology in 1894. He entered railway service with the Bangor & Aroostook as a rodman on construction on June 15, 1894. From June, 1896, until January, 1901, he was assistant engineer and superintendent of the Patten & Aroostook), and from July, 1901, until May, 1907, Mr. Newbegin was assistant engineer of the Bangor & Aroostook. At the latter time he was appointed maintenance engineer of that road, which position he was holding at the time of his recent appointment as chief engineer.

Obituary

D. T. Hanna, superintendent of the Harlem and Putnam divisions of the New York Central, Buffalo and East, with headquarters at White Plains, N. Y., following a week's illness of pneumonia.

O. L. Eaton, at one time superintendent of the Baltimore & Ohio, with headquarters at Connellsville, Pa., died recently at his home in Pittsburgh, Pa.,

Frank P. Patenall, signal engineer of the Baltimore & Ohio, at the head of that department since 1891, died at his home in Baltimore, Md., On January 11, at the age of 63. Mr. Patenall had been a leader in the railroad signaling field from his youth and had been a prominent figure in the Railway Signal Association and its successor, the Signal Section of the American Railway Association, throughout the life of that organization. Frank Percy Johnson Patenall was born at Higham Ferrers, England, on August 28, 1864. He entered the railway service in 1881 on the Lancashire & Yorkshire. After two years in the signal department of that road, he went into the service of Stevens & Son, signal manufacturers. In 1885, he came to America and was with the Union Switch & Signal Company until 1888, when he went to the Baltimore &

F. P. Patenall

Ohio, as foreman of signal construction. He was supervisor of signals until 1901, when his title was changed to superintendent of signals; and since 1898 he has been signal engineer. He was an original thinker and had introduced numerous innovations into American signal practice The upper quadrant semaphore, of which Patenall and L. F. Loree were joint patentees (1903) has become the substantially universal type of semaphore in this country; and his color-position-light signal has lately been introduced on a large mileage of the Baltimore & Ohio. His English training showed variously in his work as, for example, in the elaborate scheme of frequent printed circulars and drawings by which he gave all of his subordinates the opportunity to educate themselves thoroughly in the principles of their business. He is credited with having been the first to make use of signal lights (electric) kept normally dead, to be lighted by each approaching train.

June C. Browne, superintendent of telegraph of the Missouri Pacific, died of cancer on January 6 at his home in St. Louis, Mo. Mr. Browne was born on July 13, 1866, at Richmond Va., and at the time of his death had completed 45 years of service in the telegraph department of the Missouri Pacific, starting in December, 1882, when he first entered railway service as a telegraph operator on that railroad at Little Rock, Ark. He then advanced successively to chief telegraph operator, telegraph manager and in 1895 he was promoted to general foreman of construction and maintenance. In 1907 Mr. Browne was promoted to general supervisor of telegraph, with headquarters at St. Louis, later becoming assistant superintendent of telegraph, with headquarters at the same point. He was promoted to superintendent of telegraph in 1921, a position he held continuously until the time of his death.

David E. Brown, formerly chief assistant to the financial vice-president of the Canadian National, and latterly on special work in connection with the United States lines of that system, died at the Homeopathic Hospital, Montreal, Que., on January 12. He was 56 years of age. Mr. Brown was born in New York, and after experience in other fields, he joined the Erie in 1896, as clerk in the accounting department. He was appointed traveling auditor in 1900 and had a special assignment during 1901. In 1906 Mr. Brown was appointed by the Roosevelt administration as one of twelve men to the accounting board of the Interstate Commerce Commission, required under the Hepburn Act. He was subsequently loaned to the Civil Service Commission for six months to organize a register of eligibles for the accountancy board. He supervised all examinations for the accountancy board under the Interstate Commerce Commission. In 1912 under the jurisdiction of the Interstate Commerce Commission, Mr. Brown conducted the financial investigation of the New York, New Haven & Hartford, and in 1913, he undertook the financial inquiry into the causes of the St. Louis-San Francisco receivership and in the same year was placed in charge of the accounts and finanacial history of all common carriers to secure data required under the Valuation Act. He resigned his employ under the Interstate Commerce Commission in 1915 to join the banking department of the United States government and for the period of about a year he was national bank examiner of the New York district. In 1915 he rejoined the Interstate Commerce Commission, resuming his former work. In 1918 he was appointed assistant director of accounts under the United States Railroad Administration. In May, 1920, the Canadian government appointed him to take charge of the financial and acounting studies necessary in the Grand Trunk arbitration, and in 1921 he made a study of the accounts of the Canadian Government Railway (now part of the Canadian National). Mr. Brown was appointed assistant to the financial vice-president on May 2, 1922, being appointed chief assistant to the financial vice-president in February, 1923. Until the time of his death he was engaged in making special studies of the United States lines of the Canadian National System.